

CONTAINS NO CBI



Form Approved
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90-890000620

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Comprehensive Assessment Information Rule
REPORTING FORM

89 SEP-5 AM 9:14
EPA OFFICE

When completed, send this form to:

Document Processing Center
Office of Toxic Substances, TS-790
U.S. Environmental Protection Agency
401 M Street, SW
Washington, DC 20460
Attention: CAIR Reporting Office

For Agency Use Only:

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Document
Control Number: _____

Docket Number: _____

SECTION 1 GENERAL MANUFACTURER, IMPORTER, AND PROCESSOR INFORMATION

PART A GENERAL REPORTING INFORMATION

1.01 This Comprehensive Assessment Information Rule (CAIR) Reporting Form has been

CBI completed in response to the Federal Register Notice of..... [7][2] [2][2] [8][8]
mo. day year

☐ a. If a Chemical Abstracts Service Number (CAS No.) is provided in the Federal Register, list the CAS No. [0][0][0][5][8][4]-[8][4]-[9]

b. If a chemical substance CAS No. is not provided in the Federal Register, list either (i) the chemical name, (ii) the mixture name, or (iii) the trade name of the chemical substance as provided in the Federal Register.

(i) Chemical name as listed in the rule NA

(ii) Name of mixture as listed in the rule NA

(iii) Trade name as listed in the rule NA

c. If a chemical category is provided in the Federal Register, report the name of the category as listed in the rule, the chemical substance CAS No. you are reporting on which falls under the listed category, and the chemical name of the substance you are reporting on which falls under the listed category.

Name of category as listed in the rule NA

CAS No. of chemical substance [][][][][][]-[][]-[]

Name of chemical substance NA

1.02 Identify your reporting status under CAIR by circling the appropriate response(s).

CBI Manufacturer 1

☐ Importer 2

☒ Processor (3)

X/P manufacturer reporting for customer who is a processor 4

X/P processor reporting for customer who is a processor 5

☐ Mark (X) this box if you attach a continuation sheet.

1.03 Does the substance you are reporting on have an "x/p" designation associated with it in the above-listed Federal Register Notice?

CBI

Yes ☒ Go to question 1.04

☐

No ☐ Go to question 1.05

1.04 a. Do you manufacture, import, or process the listed substance and distribute it under a trade name(s) different than that listed in the Federal Register Notice? Circle the appropriate response.

CBI

Yes 1

☐

☒ No 2

b. Check the appropriate box below:

☐ You have chosen to notify your customers of their reporting obligations

Provide the trade name(s)

☐ You have chosen to report for your customers

☐ You have submitted the trade name(s) to EPA one day after the effective date of the rule in the Federal Register Notice under which you are reporting.

1.05 If you buy a trade name product and are reporting because you were notified of your reporting requirements by your trade name supplier, provide that trade name.

CBI

Trade name Solthane 113

☐

Is the trade name product a mixture? Circle the appropriate response.

☒ Yes 1

No 2

1.06 Certification -- The person who is responsible for the completion of this form must sign the certification statement below:

CBI

☐ "I hereby certify that, to the best of my knowledge and belief, all information entered on this form is complete and accurate."

Thomas X. Tsirimokos
NAME

Thomas X. Tsirimokos
SIGNATURE

8/31/89
DATE SIGNED

Senior Staff Attorney
TITLE

(603) 885-4556-
TELEPHONE NO.

☐ Mark (X) this box if you attach a continuation sheet.

- 1.07 Exemptions From Reporting -- If you have provided EPA or another Federal agency with the required information on a CAIR Reporting Form for the listed substance within the past 3 years, and this information is current, accurate, and complete for the time period specified in the rule, then sign the certification below. You CBI ☐ are required to complete section 1 of this CAIR form and provide any information now required but not previously submitted. Provide a copy of any previous submissions along with your Section 1 submission.

"I hereby certify that, to the best of my knowledge and belief, all required information which I have not included in this CAIR Reporting Form has been submitted to EPA within the past 3 years and is current, accurate, and complete for the time period specified in the rule."

Not Applicable
NAME _____ SIGNATURE _____ DATE SIGNED _____
TITLE _____ () _____ TELEPHONE NO. _____ DATE OF PREVIOUS SUBMISSION _____

- 1.08 CBI Certification -- If you have asserted any CBI claims in this report you must certify that the following statements truthfully and accurately apply to all of those confidentiality claims which you have asserted.

CBI ☐ "My company has taken measures to protect the confidentiality of the information, and it will continue to take these measures; the information is not, and has not been, reasonably ascertainable by other persons (other than government bodies) by using legitimate means (other than discovery based on a showing of special need in a judicial or quasi-judicial proceeding) without my company's consent; the information is not publicly available elsewhere; and disclosure of the information would cause substantial harm to my company's competitive position."

Not Applicable
NAME _____ SIGNATURE _____ DATE SIGNED _____
TITLE _____ () _____ TELEPHONE NO. _____

☐ Mark (X) this box if you attach a continuation sheet.

1.09 Facility Identification

CBI Name [S][A][N][D][E][R][S][] [A][S][S][O][C][I][A][T][E][S][] [H][U][D][S][O][N][] [] []
[] Address [2][0][] [E][X][E][C][U][T][I][V][E][] [D][R][I][V][E][] [] [] [] [] [] [] []
Street
[H][U][D][S][O][N][] [] [] [] [] [] [] [] [] [] [] [] [] [] [] []
City
[N][H][] [0][3][0][5][7][] [] [] [] []
State Zip

Dun & Bradstreet Number[0][0]-[8][2][4]-[2][0][6][7]
EPA ID Number[9][8][0][6][6][8][8][7][5]
Employer ID Number[2][0][2][3][0][8][7][2]
Primary Standard Industrial Classification (SIC) Code[3][6][9][9]
Other SIC Code[3][6][7][2]
Other SIC Code[][][][]

CBI Name [S][A][N][D][E][R][S][][A][S][S][O][C][I][A][T][E][S]-[N][H][Q][][][][]
[][] Address [D][A][N][I][E][L][][W][E][B][S][T][E][R][][H][W][Y][][S][O][U][T][H][][]
Street
[N][A][S][H][U][A][][][][][][][][][][][][][][][][][]
City
[NH] [03061]--[0868]
State Zip

Dun & Bradstreet Number[0][0]-[8][2][4]-[2][0][6][7]
Employer ID Number[2][0][2][3][0][8][7][2]

6

1.11 Parent Company Identification

CBI Name [Z][O][C][K][H][E][F][D][][C][O][R][P][O][R]A[TI][O]N[][][][][][][]

[] Address [4][5][0][0] [P][A][R][K] [G][R][A][N][A][N][A] [B][L][Y][D] []
Street

[C][A][L][I][F][O][R][N][I][A] [] [] [] [] [] [] [] [] [] [] [] [] [] []
City

State Zip

Dun & Bradstreet Number[0][0]-[8][2][5]-[5][2][8][3]

1.12 Technical Contact

CBI Name [J][A][M][E][S][][A][][K][O][H][L][E][R][][][][][][][][][][][][][][][][]

[] Title [M][G][R][] [E][N][V][I][R][O][N][M][E][N][T][I][A][L][] [A][F][F][A][I][R][S][]

Address 95 CANAL STREET

[illegible]

[N] [H] [0] [3] [0] [6] [1] -- [2] [0] [0] [4]
State Zip

Telephone Number[6][0][3]-[8][8][5]-[3][8][7][8]

1.13 This reporting year is from [01] [88] to [12] [88]
Mo. Year Mo. Year

☐ Mark (X) this box if you attach a continuation sheet.

1.14 Facility Acquired -- If you purchased this facility during the reporting year, provide the following information about the seller: *Not Applicable*

Not Applicable

[illegible][illegible]

Street

City

[] [] [] [] [] [] [] -- [] [] [] []

State

Zip

[illegible]

Date of Sale[][] [][] [][]

Mo.

Day

Year

[illegible]

Telephone Number[][]-[][]-[][][][]

1.15 Facility Sold -- If you sold this facility during the reporting year, provide the following information about the buyer:

Not Applicable

[illegible][illegible]

Street

[] [] [] [] [] [] [] [] [] [] [] [] [] [] [] [] [] []

City

[] [] [] [] [] [] -- [] [] [] []

State

Zid

Employer ID Number [][][][][][][][]

[illegible]

Mo.

Dav

Year

[illegible]

Telephone Number() () () - () () () - () () () ()

☐ Mark (X) this box if you attach a continuation sheet.

1.16 For each classification listed below, state the quantity of the listed substance that was manufactured, imported, or processed at your facility during the reporting year.

CBI
☐ Classification Quantity (kg/yr)

Manufactured Not App.
Imported Not App.
Processed (include quantity repackaged) 24.5 kg

Of that quantity manufactured or imported, report that quantity:

In storage at the beginning of the reporting year Not App.
For on-site use or processing Not App.
For direct commercial distribution (including export) Not App.
In storage at the end of the reporting year Not App.

Of that quantity processed, report that quantity:

In storage at the beginning of the reporting year N/A
Processed as a reactant (chemical producer) 0.0
Processed as a formulation component (mixture producer) 0.0
Processed as an article component (article producer) N/A
Repackaged (including export) 0.0
In storage at the end of the reporting year N/A

☐ Mark (X) this box if you attach a continuation sheet.

PART C IDENTIFICATION OF MIXTURES

1.17 Mixture -- If the listed substance on which you are required to report is a mixture or a component of a mixture, provide the following information for each component chemical. (If the mixture composition is variable, report an average percentage of each component chemical for all formulations.)

CBI

☐

Component Name	Supplier Name	Average % Composition by Weight (specify precision, e.g., 45% ± 0.5%)
<u>Toluene Diisocyanate</u>	<u>Morton Thiokol, Inc.</u>	<u>6-7% ± NA</u>
		Total 100%

☐ Mark (X) this box if you attach a continuation sheet.

2.04 State the quantity of the listed substance that your facility manufactured, imported, or processed during the 3 corporate fiscal years preceding the reporting year in descending order.

CBI

☐ Year ending [1][2] [8][7]
Mo. Year

Quantity manufactured Not App. kg

Quantity imported Not App. kg

Quantity processed 59 kg

Year ending [0][7] [8][6]
Mo. Year

Quantity manufactured Not App. kg

Quantity imported Not App. kg

Quantity processed 0 kg

Year ending [0][7] [8][5]
Mo. Year

Quantity manufactured Not App. kg

Quantity imported Not App. kg

Quantity processed 0 kg

2.05 Specify the manner in which you manufactured the listed substance. Circle all appropriate process types.

CBI

☐ Continuous process Not Applicable 1

Semicontinuous process 2

Batch process 3

☐ Mark (X) this box if you attach a continuation sheet.

2.06 Specify the manner in which you processed the listed substance. Circle all appropriate process types.

☐

Continuous process 1

Semicontinuous process 2

Batch process (3)

2.07 State your facility's name-plate capacity for manufacturing or processing the listed substance. (If you are a batch manufacturer or batch processor, do not answer this question.)

CBI

☐

Manufacturing capacity kg/yr

Processing capacity kg/yr

2.08 If you intend to increase or decrease the quantity of the listed substance manufactured, imported, or processed at any time after your current corporate fiscal year, estimate the increase or decrease based upon the reporting year's production volume.

CBI

☐

	Manufacturing Quantity (kg)	Importing Quantity (kg)	Processing Quantity (kg)
Amount of increase	<u>Not Applicable</u>	<u>Not Applicable</u>	<u>N/A</u>
Amount of decrease	<u>Not Applicable</u>	<u>Not Applicable</u>	<u>N/A</u>

☐ Mark (X) this box if you attach a continuation sheet.

2.09 For the three largest volume manufacturing or processing process types involving the listed substance, specify the number of days you manufactured or processed the listed substance during the reporting year. Also specify the average number of hours per day each process type was operated. (If only one or two operations are involved, list those.)

CBI

☐

Days/Year Average
Hours/Day

Process Type #1 (The process type involving the largest quantity of the listed substance.)

Manufactured Not Applicable
Processed 50 2

Process Type #2 (The process type involving the 2nd largest quantity of the listed substance.)

Manufactured Not Applicable
Processed _____

Process Type #3 (The process type involving the 3rd largest quantity of the listed substance.)

Manufactured Not Applicable
Processed _____

2.10 State the maximum daily inventory and average monthly inventory of the listed substance that was stored on-site during the reporting year in the form of a bulk chemical.

CBI

☐

Response Not Required for TDI
Maximum daily inventory kg
Average monthly inventory kg

☐ Mark (X) this box if you attach a continuation sheet.

2.11 Related Product Types -- List any byproducts, coproducts, or impurities present with the listed substance in concentrations greater than 0.1 percent as it is manufactured, imported, or processed. The source of byproducts, coproducts, or impurities means the source from which the byproducts, coproducts, or impurities are made or introduced into the product (e.g., carryover from raw material, reaction product, etc.).

CBI

☐

<u>CAS No.</u>	<u>Chemical Name</u>	<u>Byproduct, Coproduct or Impurity¹</u>	<u>Concentration (%) (specify ± % precision)</u>	<u>Source of Byproducts, Coproducts, or Impurities</u>
<u>UK</u>	<u>UK</u>	<u>UK</u>	<u>UK</u>	<u>UK</u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>

¹Use the following codes to designate byproduct, coproduct, or impurity:

B = Byproduct
C = Coproduct
I = Impurity

☐ Mark (X) this box if you attach a continuation sheet.

- 2.12 Existing Product Types -- List all existing product types which you manufactured, imported, or processed using the listed substance during the reporting year. List the quantity of listed substance you use for each product type as a percentage of the total volume of listed substance used during the reporting year. Also list the quantity of listed substance used captively on-site as a percentage of the value listed under column b., and the types of end-users for each product type. (Refer to ☐ the instructions for further explanation and an example.)

CBI

a.	b.	c.	d.
Product Types ¹	% of Quantity Manufactured, Imported, or Processed	% of Quantity Used Captively On-Site	Type of End-Users ²
<i>K</i>	<i>100% Processed</i>	<i>0</i>	<i>I</i>

¹Use the following codes to designate product types:

A = Solvent	L = Moldable/Castable/Rubber and additives
B = Synthetic reactant	M = Plasticizer
C = Catalyst/Initiator/Accelerator/ Sensitizer	N = Dye/Pigment/Colorant/Ink and additives
D = Inhibitor/Stabilizer/Scavenger/ Antioxidant	O = Photographic/Reprographic chemical and additives
E = Analytical reagent	P = Electrodeposition/Plating chemicals
F = Chelator/Coagulant/Sequestrant	Q = Fuel and fuel additives
G = Cleanser/Detergent/Degreaser	R = Explosive chemicals and additives
H = Lubricant/Friction modifier/Antiwear agent	S = Fragrance/Flavor chemicals
I = Surfactant/Emulsifier	T = Pollution control chemicals
J = Flame retardant	U = Functional fluids and additives
K = Coating/Binder/Adhesive and additives	V = Metal alloy and additives
	W = Rheological modifier
	X = Other (specify) _____

²Use the following codes to designate the type of end-users:

I = Industrial	CS = Consumer
CM = Commercial	H = Other (specify) _____

☐ Mark (X) this box if you attach a continuation sheet.

- 2.13 Expected Product Types -- Identify all product types which you expect to manufacture, import, or process using the listed substance at any time after your current corporate fiscal year. For each use, specify the quantity you expect to manufacture, import, or process for each use as a percentage of the total volume of listed substance used during the reporting year. Also list the quantity of listed substance used captively on-site as a percentage of the value listed under column b., and the types of end-users for each product type. (Refer to the instructions for further explanation and an example.)

CBI

☐

a.	b.	c.	d.
Product Types ¹	% of Quantity Manufactured, Imported, or Processed	% of Quantity Used Captively On-Site	Type of End-Users ²
<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>

¹Use the following codes to designate product types:

A = Solvent	L = Moldable/Castable/Rubber and additives
B = Synthetic reactant	M = Plasticizer
C = Catalyst/Initiator/Accelerator/ Sensitizer	N = Dye/Pigment/Colorant/Ink and additives
D = Inhibitor/Stabilizer/Scavenger/ Antioxidant	O = Photographic/Reprographic chemical and additives
E = Analytical reagent	P = Electrodeposition/Plating chemicals
F = Chelator/Coagulant/Sequestrant	Q = Fuel and fuel additives
G = Cleanser/Detergent/Degreaser	R = Explosive chemicals and additives
H = Lubricant/Friction modifier/Antiwear agent	S = Fragrance/Flavor chemicals
I = Surfactant/Emulsifier	T = Pollution control chemicals
J = Flame retardant	U = Functional fluids and additives
K = Coating/Binder/Adhesive and additives	V = Metal alloy and additives
	W = Rheological modifier
	X = Other (specify) _____

²Use the following codes to designate the type of end-users:

I = Industrial	CS = Consumer
CM = Commercial	H = Other (specify) _____

☐ Mark (X) this box if you attach a continuation sheet.

2.14 Final Product -- Complete the following table for each type of final product manufactured, imported, or processed at your facility that contains the listed substance other than as an impurity.

☐

a.	b.	c.	d.
Product Type ¹	Final Product's Physical Form ²	Average % Composition of Listed Substance in Final Product	Type of End-Users ³
<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>

¹Use the following codes to designate product types:

A = Solvent	L = Moldable/Castable/Rubber and additives
B = Synthetic reactant	M = Plasticizer
C = Catalyst/Initiator/Accelerator/Sensitizer	N = Dye/Pigment/Colorant/Ink and additives
D = Inhibitor/Stabilizer/Scavenger/Antioxidant	O = Photographic/Reprographic chemical and additives
E = Analytical reagent	P = Electrodeposition/Plating chemicals
F = Chelator/Coagulant/Sequestrant	Q = Fuel and fuel additives
G = Cleanser/Detergent/Degreaser	R = Explosive chemicals and additives
H = Lubricant/Friction modifier/Antiwear agent	S = Fragrance/Flavor chemicals
I = Surfactant/Emulsifier	T = Pollution control chemicals
J = Flame retardant	U = Functional fluids and additives
K = Coating/Binder/Adhesive and additives	V = Metal alloy and additives
	W = Rheological modifier
	X = Other (specify) _____

²Use the following codes to designate the final product's physical form:

A = Gas	F2 = Crystalline solid
B = Liquid	F3 = Granules
C = Aqueous solution	F4 = Other solid
D = Paste	G = Gel
E = Slurry	H = Other (specify) _____
F1 = Powder	

³Use the following codes to designate the type of end-users:

I = Industrial	CS = Consumer
CM = Commercial	H = Other (specify) _____

☐ Mark (X) this box if you attach a continuation sheet.

2.15 Circle all applicable modes of transportation used to deliver bulk shipments of the
CBI listed substance to off-site customers.

Not Applicable

- ☐ Truck
Railcar
Barge, Vessel
Pipeline
Plane
Other (specify) _____

2.16 Customer Use -- Estimate the quantity of the listed substance used by your customers
or prepared by your customers during the reporting year for use under each category
CBI of end use listed (i-iv).

☐

Category of End Use

i. Industrial Products

Chemical or mixture *Not App.* kg/yr

Article *" "* kg/yr

ii. Commercial Products

Chemical or mixture *Not App.* kg/yr

Article *" "* kg/yr

iii. Consumer Products

Chemical or mixture *Not App.* kg/yr

Article *" "* kg/yr

iv. Other

Distribution (excluding export) *Not App.* kg/yr

Export *" "* kg/yr

Quantity of substance consumed as reactant *" "* kg/yr

Unknown customer uses *" "* kg/yr

☐ Mark (X) this box if you attach a continuation sheet.

SECTION 3 PROCESSOR RAW MATERIAL IDENTIFICATION

PART A GENERAL DATA

- 3.01 Specify the quantity purchased and the average price paid for the listed substance for each major source of supply listed. Product trades are treated as purchases.
CBI The average price is the market value of the product that was traded for the listed substance.

☐

<u>Source of Supply</u>	<u>Quantity (kg)</u>	<u>Average Price (\$/kg)</u>
The listed substance was manufactured on-site.	<u>NA</u>	<u>NA</u>
The listed substance was transferred from a different company site.	<u>NA</u>	<u>NA</u>
The listed substance was purchased directly from a manufacturer or importer.	<u>24.5 kg.</u>	<u>\$29.06</u>
The listed substance was purchased from a distributor or repackager.	<u>NA</u>	<u>NA</u>
The listed substance was purchased from a mixture producer.	<u>NA</u>	<u>NA</u>

- 3.02 Circle all applicable modes of transportation used to deliver the listed substance to your facility.

☐

<u>Truck</u>	<u>1</u>
Railcar	2
Barge, Vessel	3
Pipeline	4
Plane	5
Other (specify) _____	6

☐ Mark (X) this box if you attach a continuation sheet.

3.03 a. Circle all applicable containers used to transport the listed substance to your facility.
CBI

☐

Bags 1
Boxes 2
Free standing tank cylinders 3
Tank rail cars 4
Hopper cars 5
Tank trucks 6
Hopper trucks 7
Drums 8
Pipeline 9
Other (specify) _____ 10

b. If the listed substance is transported in pressurized tank cylinders, tank rail cars, or tank trucks, state the pressure of the tanks.

Tank cylinders Not Applicable mmHg
Tank rail cars mmHg
Tank trucks mmHg

☐ Mark (X) this box if you attach a continuation sheet.

PART B RAW MATERIAL IN THE FORM OF A MIXTURE

3.04 If you obtain the listed substance in the form of a mixture, list the trade name(s) of the mixture, the name of its supplier(s) or manufacturer(s), an estimate of the average percent composition by weight of the listed substance in the mixture, and the amount of mixture processed during the reporting year.

CBI

☐

<u>Trade Name</u>	<u>Supplier or Manufacturer</u>	<u>Average % Composition by Weight (specify \pm % precision)</u>	<u>Amount Processed (kg/yr)</u>
<u>Solithane 113</u>	<u>Morton Thiokol, Inc.</u>	<u>6-7% \pm NA</u>	<u>24.5</u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>

☐ Mark (X) this box if you attach a continuation sheet.

PART C RAW MATERIAL VOLUME

3.05 State the quantity of the listed substance used as a raw material during the reporting year in the form of a class I chemical, class II chemical, or polymer, and the percent composition, by weight, of the listed substance.

☐

	Quantity Used (kg/yr)	% Composition by Weight of Listed Sub- stance in Raw Material (specify \pm % precision)
Class I chemical	24.5	6-7% \pm NA
Class II chemical	Not App.	Not App.
Polymer	Not App.	Not App.

☐ Mark (X) this box if you attach a continuation sheet.

SECTION 4 PHYSICAL/CHEMICAL PROPERTIES

General Instructions:

If you are reporting on a mixture as defined in the glossary, reply to questions in Section 4 that are inappropriate to mixtures by stating "NA -- mixture."

For questions 4.06-4.15, if you possess any hazard warning statement, label, MSDS, or other notice that addresses the information requested, you may submit a copy or reasonable facsimile in lieu of answering those questions which it addresses.

PART A PHYSICAL/CHEMICAL DATA SUMMARY

4.01 Specify the percent purity for the three major¹ technical grade(s) of the listed substance as it is manufactured, imported, or processed. Measure the purity of the substance in the final product form for manufacturing activities, at the time you import the substance, or at the point you begin to process the substance.

☐ "NA -- Mixture"

	<u>Manufacture</u>	<u>Import</u>	<u>Process</u>
Technical grade #1	_____ % purity	_____ % purity	_____ % purity
Technical grade #2	_____ % purity	_____ % purity	_____ % purity
Technical grade #3	_____ % purity	_____ % purity	_____ % purity

¹Major = Greatest quantity of listed substance manufactured, imported or processed.

4.02 Submit your most recently updated Material Safety Data Sheet (MSDS) for the listed substance, and for every formulation containing the listed substance. If you possess an MSDS that you developed and an MSDS developed by a different source, submit your version. Indicate whether at least one MSDS has been submitted by circling the appropriate response.

☒ Yes (1)

No 2

Indicate whether the MSDS was developed by your company or by a different source.

Your company 1

☒ Another source (2)

☐ Mark (X) this box if you attach a continuation sheet.

Recd. 6/22/89

MORTON THIOKOL, INC.
MORTON CHEMICAL DIVISION
3 WEST WACKER DRIVE
CHICAGO, IL 60606-1292MATERIAL SAFETY DATA SHEET
DOCUMENT PREPARED: 02/24/89
PRODUCT: ~~SOLITHANE 113~~
PAGE 1

SC004612

SECTION 1: PRODUCT INFORMATION

PRODUCT NAME: SOLITHANE 113

EFFECTIVE DATE: 02/24/89

CHEMICAL NAME: Isocyanate Terminated Polyol

SUPERCEDES: 12/87

PRODUCT USE: Coatings and Castings

EMERGENCY PHONE: (815)338-1800
(24 hours/day)

OTHER INFORMATION PHONE: (312)807-3421

SECTION 2: HAZARDOUS INGREDIENTS

CHEMICAL NAME/COMMON NAME	% [1]	CAS NO.	OSHA PEL	ACGIH TLV	OTHER
Toluene Diisocyanate/ TDI	6-7	584-84-9	0.02 ppm [2]	0.005 ppm	TLV-STEL - 0.02 ppm

SECTION 3: PHYSICAL DATA [1]

% NON-VOLATILES: 93

VAPOR DENSITY (Air - 1): > 6

pH: Not Applicable

BOILING POINT: 482 F (250 C) @ 760 mm Hg

VAPOR PRESSURE: Not Applicable

SOLUBILITY IN WATER: Not Applicable

SPECIFIC GRAVITY (water - 1): 1.073

EVAPORATION RATE (nBUOAc - 1): < 1

APPEARANCE AND ODOR: Pale Yellow; Irritating Pungent Odor

SECTION 4: FIRE AND EXPLOSION HAZARDS

FLASH POINT: > 200 F (94 C)

FLAMMABLE LIMITS:

METHOD USED: Setaflash

LEL: Not Applicable
UEL: Not Applicable

[1] Typical amount, not a specification.

[2] Governed by a ceiling limit value (C) - The value which should not be exceeded during any part of the working exposure.

EXTINGUISHING MEDIA: Use foam, dry chemical.

SPECIAL FIRE FIGHTING PROCEDURES: Full emergency equipment with NIOSH/MSHA approved self-contained full-face positive pressure breathing apparatus should be worn.

UNUSUAL FIRE AND EXPLOSION HAZARDS: None known.

HAZARDOUS DECOMPOSITION PRODUCTS: Carbon monoxide, carbon dioxide, oxides of nitrogen, possibly aromatic amines, aldehydes, ammonia, and small amounts of hydrogen cyanide under burning conditions.

SECTION 5: HEALTH HAZARD DATA

ORAL TOXICITY:

Unknown for product mixture. Animal experiments indicate that the toxic effects of TDI or polymeric isocyanates when ingested are slight. The LD50 in rats for TDI is 5840 mg/kg. From these experiments, it is believed that ingestion of TDI or polymeric isocyanates would not be fatal to humans, but could result in irritation and corrosive action on the mouth and stomach tissue.

TDI: orl-rat: LD50: 5800 mg/kg (R.T.E.C.S. No. C2 6300000)

MORTON THICKOL, INC.
MATERIAL SAFETY DATA SHEETPRODUCT: SOLITHANE 113
PAGE 2

SECTION 5: HEALTH HAZARD DATA, continued

DERMAL TOXICITY:

Unknown for product mixture. Isocyanates react with skin protein and tissue moisture. If not promptly removed, liquid spills on the skin can cause reddening, swelling, and blistering of the exposed skin. REPEATED SKIN CONTACT HAS CAUSED SKIN SENSITIZATION IN HUMANS AND SHOULD BE AVOIDED.

TDI: skn-rbt: 500 mg/24H MOD

EYE:

Unknown for product mixture. EYE CONTACT - LIQUID ISOCYANATES SPLASHED INTO THE EYES CAN BE HARMFUL TO THE DELICATE EYE TISSUE AND MUST BE AVOIDED. Injury results from reaction of the isocyanate with the eye fluid which may dehydrate the tissue and result in severe irritation of the eyelid and possible damage to the cornea (corneal opacity). Exposure to high concentrations of isocyanate vapor can lead to formation of solid crystals in the eye fluid causing mechanical irritation of the eyes hours after exposure.

TDI: eye-rbt: 100 mg SEV

INHALATION TOXICITY:

Unknown for product mixture. Inhalation of isocyanate vapors can produce severe irritation of the mucous membranes in the respiratory tract, i.e. nose, throat, and lungs. Exposure of humans to concentrations of isocyanate vapor in excess of the maximum acceptable concentration has caused illness characterized by breathlessness, chest discomfort and reduced pulmonary function. Massive exposure to high concentrations has caused, within minutes, irritation of the trachea and larynx and severe coughing spasms. Massive exposure may also lead to bronchitis, bronchial spasm, and/or pulmonary edema (chemical pneumonitis). Concentrations of isocyanate vapors should be maintained below the TLV by engineering controls. Can cause sensitization in humans.

TDI: ihl-hmn: TCLo: 0.02 ppm/2Y:PUL
ihl-hmn: TCLo: 0.5 ppm:IRRReferences: N.I.O.S.H. - R.T.E.C.S., 1982.
Sax: Dangerous Properties of Industrial Materials (1984)

CHRONIC TOXICITY:

Unknown for product mixture. Toluene diisocyanate (TDI) is considered a suspect carcinogen as tested by National Toxicology Program, 1983, in rats and female mice. Administered by gavage to rats, TDI caused subcutaneous neoplasms or cancers in both sexes. Additionally, males developed pancreatic neoplasms and females, pancreatic, liver and mammary neoplasms. In mice similarly exposed, TDI caused circulatory neoplasms and cancers (combined) and liver neoplasms in females but was not carcinogenic to males. (NTP 1983 Program Tech Report on Carcinogenic Study of Commercial Grade of TDI.)

EFFECTS OF OVEREXPOSURE:

INGESTION:

Unknown for product mixture. May cause gastrointestinal irritation, nausea, drowsiness, and possibly unconsciousness.

SKIN CONTACT:

Unknown for product mixture. Repeated or prolonged contact may cause skin dryness, redness, swelling and dermatitis. Isocyanate sensitization is possible.

MORTON THICKOL, INC.
MATERIAL SAFETY DATA SHEETPRODUCT: SOLITHANE 113
PAGE 3

SECTION 5: HEALTH HAZARD DATA, continued

EYE CONTACT:

Unknown for product mixture. Vapor and liquid are severe eye irritants. May produce severe eye irritation and corneal edema.

INHALATION:

Unknown for product mixture. Vapors are severe nasal and respiratory irritants. High exposure to the solvent vapors may result in headache, narcotic effect, and unconsciousness. Asthmatic-type symptoms may develop as a reaction to residual isocyanate monomers.

ACUTE SYSTEMIC EFFECTS:

May cause irritation of the eyes, nose and throat. Severe overexposure may cause weakness, drowsiness and unconsciousness.

CHRONIC SYSTEMIC EFFECTS:

Signs and symptoms from chronic exposure resemble those from acute mishaps but are in part systemically more severe. Extended exposure to isocyanate vapors may cause sensitization resulting in asthmatic symptoms.

NOTES:

Medical conditions generally recognized as being aggravated by exposure:

- Toxicity testing on the product mixture has not been conducted. Comments in SECTION V pertain only to the constituent(s) listed in SECTION II.
- Persons with pre-existing skin disorders may be more susceptible to the effects of the isocyanate.
- In persons with impaired pulmonary function, especially those with obstructive airway diseases, the breathing of isocyanate vapors might cause exacerbation of symptoms due to irritant properties. Individuals with pre-existing pulmonary problems such as asthma may also be more susceptible to the isocyanate.

SECTION 6: EMERGENCY HEALTH AND FIRST AID PROCEDURES

EYE CONTACT: May cause eye irritation and if not removed immediately can produce burns. Immediately rinse eyes with constant stream of fresh water for 15 minutes, lifting upper and lower eyelids frequently. Consult a physician immediately.

SKIN CONTACT: Remove contaminated clothing and wash exposed skin thoroughly with warm water and soap. If irritation is present after washing, get medical attention.

INHALATION: Remove exposed person to fresh air. If breathing has stopped perform artificial respiration. Keep the affected person warm and at rest. Get medical attention immediately.

INGESTION: DO NOT induce vomiting. Obtain medical attention immediately, if unavailable contact nearest Poison Control Center. Keep affected person warm and at rest.

NOTE TO PHYSICIAN: Supportive therapy is recommended. No known antidote. Careful lavage may be indicated after ingestion.

SECTION 7: REACTIVITY DATA

STABLE OR UNSTABLE:

Stable under normal conditions of usage.

CONDITIONS TO AVOID:

Storage at temperatures above 110 F and moisture contact.

INCOMPATIBLE SUBSTANCES:

Oxidizing substances.

CAN HAZARDOUS POLYMERIZATION OCCUR:

Will not occur.

HAZARDOUS DECOMPOSITION PRODUCTS AND CONDITIONS:

Carbon monoxide, carbon dioxide, oxides of nitrogen, possibly aromatic amines, aldehydes, ammonia, and small amounts of hydrogen cyanide under burning conditions.

MORTON THICKOL, INC.
MATERIAL SAFETY DATA SHEETPRODUCT: SOLITHANE 113
PAGE 4

SECTION 8: SPILL AND LEAK PROCEDURES

RESPONSE TO SPILLS:

Stop discharge and contain spill or contaminated material using dike, barrier, or other means. Recover with pumping equipment, vacuum truck, sorbents or by other means. Neutralize by soaking with 5% ammonia solution or water with 10% isopropanol. Open containers should not be closed for disposal until all foaming or bubbling has stopped. Place material in suitable containers for further handling.

HAZARDS TO BE AVOIDED:

Do not flush to stream, other bodies of water or sewer unless authorized. Avoid contact with skin or clothing. Other hazards see Section Nos. IV (Fire and Explosion Data), V (Health Hazard Data), and IX (Control Measures).

SPILL NOTIFICATION:

This product contains one or more hazardous substances as listed in 40 CFR 302.4, which, if released into the environment in a quantity equal to or greater than the reportable quantity, must immediately be reported to the National Response Center (NRC), Telephone No. 1-800-424-8802. Check Federal, State and local reporting regulations.

DISPOSAL METHODS:

- (a) Recycle, if feasible.
- (b) Incinerate in authorized facility.
- (c) Treatment at Industrial or Liquid Waste treatment facility.
- (d) Landfill in authorized facility. (Solidification or fixation may be required prior to landfill disposal.)

NOTES:

THIS MATERIAL IF BEING DISCARDED DISPOSE OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REGULATIONS.

SECTION 9: CONTROL MEASURES

RESPIRATORY PROTECTION:

Use NIOSH/MSHA approved respiratory protection within equipment limitations. Consult OSHA 29 CFR, 1910.134, Respiratory Protection. S.C.B.A. or air line respirators may be required for protection against the isocyanate. An Industrial Hygienist should be consulted to aid in this determination and for consultation regarding respirator selection, use and training.

OTHER PROTECTIVE EQUIPMENT:

FOR HANDS AND BODY:

Chemical resistant gloves are recommended for hand protection. Work clothing for general body protection and other protective clothing as necessary to prevent repeated or prolonged skin contact.

FOR EYES:

Safety glasses, face shields (eight-inch minimum) or splash-proof chemical goggles in addition to safety glasses during pouring and dispensing or where other eye hazards exist.

OTHER:

- Use under well-ventilated conditions.
- For personal hygiene protection we recommend that employees wash thoroughly after handling product. Always wash-up before eating, drinking, smoking or using restroom facilities.
- Properly bond and ground all containers during pouring, dispensing and mixing operations to minimize the static charge buildup.

VENTILATION:

Exhaust ventilation at all vapor release points is recommended to maintain vapors below lowest TLV of substance in mixture.

SECTION 10: SPECIAL PRECAUTIONS

RECOMMENDED STORAGE PRACTICE AND CONDITIONS:

Store between 50 and 100 F in dry area. Storage at higher temperatures causes polymerization.

MORTON THIOKOL, INC.
MATERIAL SAFETY DATA SHEET

PRODUCT: SOLITHANE 113
PAGE 5

SECTION 10: SPECIAL PRECAUTIONS, continued

OTHER PRECAUTIONS:

For industrial use only. Use with adequate ventilation. Avoid skin contact.
Eyewash and shower should be available.
Always wash-up after handling and before eating, drinking, smoking or using restroom facilities.

SECTION 11: LABELING INFORMATION

DOT SHIPPING NAME: Non-Regulated
DOT LABEL: Not Applicable
DOT IDENTIFICATION NO.: Not Applicable
MORTON PRECAUTIONARY LABEL NO.: L177

SECTION 12: REGULATORY INFORMATION

SARA TITLE III, SECTION 313 REQUIREMENTS:

Substances identified with an asterisk in SECTION 2 - HAZARDOUS INGREDIENTS, are toxic chemicals under Section 313. If no material is identified with an asterisk, then this product contains no substance reportable under this notification requirement.

SECTION 13: USERS RESPONSIBILITY

A BULLETIN SUCH AS THIS CANNOT BE EXPECTED TO COVER ALL POSSIBLE INDIVIDUAL SITUATIONS. AS THE USER HAS THE RESPONSIBILITY TO PROVIDE A SAFE WORKPLACE, ALL ASPECTS OF AN INDIVIDUAL OPERATION SHOULD BE EXAMINED TO DETERMINE IF, OR WHERE, PRECAUTIONS - IN ADDITION TO THOSE DESCRIBED HEREIN - ARE REQUIRED. ANY HEALTH HAZARD AND SAFETY INFORMATION CONTAINED HEREIN SHOULD BE PASSED ON TO YOUR CUSTOMERS OR EMPLOYEES, AS THE CASE MAY BE. MORTON THIOKOL, INC. MUST RELY ON THE USER TO UTILIZE THE INFORMATION WE HAVE SUPPLIED TO DEVELOP WORK PRACTICE GUIDELINES AND EMPLOYEE INSTRUCTIONAL PROGRAMS FOR THE INDIVIDUAL OPERATION.

DISCLAIMER OF LIABILITY

The information contained herein is, to the best of our knowledge and belief, accurate. However, since the conditions of handling and use are beyond our control, we make no guarantee of results, and assume no liability for damages incurred by use of this material. All chemicals may present unknown health hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards which exist. Final determination of suitability of the chemical is the sole responsibility of the user. Users of any chemical should satisfy themselves that the conditions and methods of use assure that the chemical is used safely. NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESSED OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER NATURE ARE MADE HEREUNDER WITH RESPECT TO THE INFORMATION CONTAINED HEREIN OR THE CHEMICAL TO WHICH THE INFORMATION REFERS. It is the responsibility of the user to comply with all applicable Federal, State and local laws and regulations.

Nothing contained herein is to be construed as a recommendation for use in violation of any patents or of applicable laws or regulations.

INITIALS: DBW:PSF - Chicago
SKF:mas - Woodstock

MORTON THIOKOL, INC.
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COMMONWEALTH OF PENNSYLVANIA ADDENDUM TO
MATERIAL SAFETY DATA SHEET

SOLITHANE 113

All of the materials in this product that are required by the Commonwealth of Pennsylvania to be identified are either listed below or in SECTION 2 of the Material Safety Data Sheet. In addition, some of the materials identified may have been placed by the Commonwealth of Pennsylvania on their Hazardous Substance List.

<u>INGREDIENTS</u>	<u>CAS NUMBER</u>	<u>WEIGHT %</u>
Isocyanate Terminated Polyol	Proprietary	93-94

The specific chemical identity of any substance not identified with a Chemical Abstracts Service Number is being withheld as a trade secret.

MSDS EFFECTIVE DATE: 02/24/89
ADDENDUM EFFECTIVE DATE: 02/24/89

SKF:mes

4.03 Submit a copy or reasonable facsimile of any hazard information (other than an MSDS) that is provided to your customers/users regarding the listed substance or any formulation containing the listed substance. Indicate whether this information has been submitted by circling the appropriate response.

Yes 1

☒ No 2

4.04 For each activity that uses the listed substance, circle all the applicable number(s) corresponding to each physical state of the listed substance during the activity listed. Physical states for importing and processing activities are determined at the time you import or begin to process the listed substance. Physical states for manufacturing, storage, disposal and transport activities are determined using the final state of the product.

CBI

☐

Activity	Physical State				
	Solid	Slurry	Liquid	Liquified Gas	Gas
Manufacture	1	2	3	4	5
Import	1	2	3	4	5
Process	1	2	3	4	5
Store	1	2	3	4	5
Dispose	1	2	3	4	5
Transport	1	2	3	4	5

☐ Mark (X) this box if you attach a continuation sheet.

- 4.05 Particle Size -- If the listed substance exists in particulate form during any of the following activities, indicate for each applicable physical state the size and the percentage distribution of the listed substance by activity. Do not include particles ≥ 10 microns in diameter. Measure the physical state and particle sizes for importing and processing activities at the time you import or begin to process the listed substance. Measure the physical state and particle sizes for manufacturing storage, disposal and transport activities using the final state of the product.

CBI

☐

Not Applicable

Physical State

Manufacture Import Process Store Dispose Transport

Dust

<1 micron

1 to <5 microns

5 to <10 microns

Powder

<1 micron

1 to <5 microns

5 to <10 microns

Fiber

<1 micron

1 to <5 microns

5 to <10 microns

Aerosol

<1 micron

1 to <5 microns

5 to <10 microns

☐ Mark (X) this box if you attach a continuation sheet.

SECTION 5 ENVIRONMENTAL FATE

PART A RATE CONSTANTS AND TRANSFORMATION PRODUCTS

5.01 Indicate the rate constants for the following transformation processes.

a. Photolysis:

Absorption spectrum coefficient (peak) UK (1/M cm) at _____ nm
Reaction quantum yield, ϕ UK at _____ nm
Direct photolysis rate constant, k_p , at ... UK 1/hr _____ latitude

b. Oxidation constants at 25°C:

For 1O_2 (singlet oxygen), k_{ox} UK 1/M hr
For RO_2 (peroxy radical), k_{ox} UK 1/M hr

c. Five-day biochemical oxygen demand, BOD_5 ... UK mg/l

d. Biotransformation rate constant:

For bacterial transformation in water, k_b ... UK 1/hr
Specify culture UK

e. Hydrolysis rate constants:

For base-promoted process, k_b UK 1/M hr
For acid-promoted process, k_a UK 1/M hr
For neutral process, k_n UK 1/hr

f. Chemical reduction rate (specify conditions) UK

g. Other (such as spontaneous degradation) ... UK

☐ Mark (X) this box if you attach a continuation sheet.

PART B PARTITION COEFFICIENTS

5.02 a. Specify the half-life of the listed substance in the following media.

<u>Media</u>	<u>Half-life (specify units)</u>
Groundwater	<u>UK</u>
Atmosphere	<u>UK</u>
Surface water	<u>UK</u>
Soil	<u>UK</u>

b. Identify the listed substance's known transformation products that have a half-life greater than 24 hours.

<u>CAS No.</u>	<u>Name</u>	<u>Half-life (specify units)</u>	<u>Media</u>
<u>UK</u>	<u>UK</u>	<u>UK</u>	in <u>UK</u>
			in
			in
			in

5.03 Specify the octanol-water partition coefficient, K_{ow} ... UK at 25°C
 Method of calculation or determination

5.04 Specify the soil-water partition coefficient, K_d UK at 25°C
 Soil type

5.05 Specify the organic carbon-water partition coefficient, K_{oc} UK at 25°C

5.06 Specify the Henry's Law Constant, H UK atm-m³/mole

☐ Mark (X) this box if you attach a continuation sheet.

5.07 List the bioconcentration factor (BCF) of the listed substance, the species for which it was determined, and the type of test used in deriving the BCF.

Bioconcentration Factor

Species

Test¹

UK

UK

UK

¹Use the following codes to designate the type of test:

F = Flowthrough

S = Static

☐ Mark (X) this box if you attach a continuation sheet.

6.04 For each market listed below, state the quantity sold and the total sales value of the listed substance sold or transferred in bulk during the reporting year.

☐

Not Applicable

<u>Market</u>	<u>Quantity Sold or Transferred (kg/yr)</u>	<u>Total Sales Value (\$/yr)</u>
Retail sales	_____	_____
Distribution -- Wholesalers	_____	_____
Distribution -- Retailers	_____	_____
Intra-company transfer	_____	_____
Repackagers	_____	_____
Mixture producers	_____	_____
Article producers	_____	_____
Other chemical manufacturers or processors	_____	_____
Exporters	_____	_____
Other (specify)	_____	_____

6.05 Substitutes -- List all known commercially feasible substitutes that you know exist for the listed substance and state the cost of each substitute. A commercially feasible substitute is one which is economically and technologically feasible to use in your current operation, and which results in a final product with comparable performance in its end uses.

CBI

☐

<u>Substitute</u>	<u>Cost (\$/kg)</u>
<i>UK</i>	<i>UK</i>
_____	_____
_____	_____
_____	_____

☐ Mark (X) this box if you attach a continuation sheet.

SECTION 7 MANUFACTURING AND PROCESSING INFORMATION

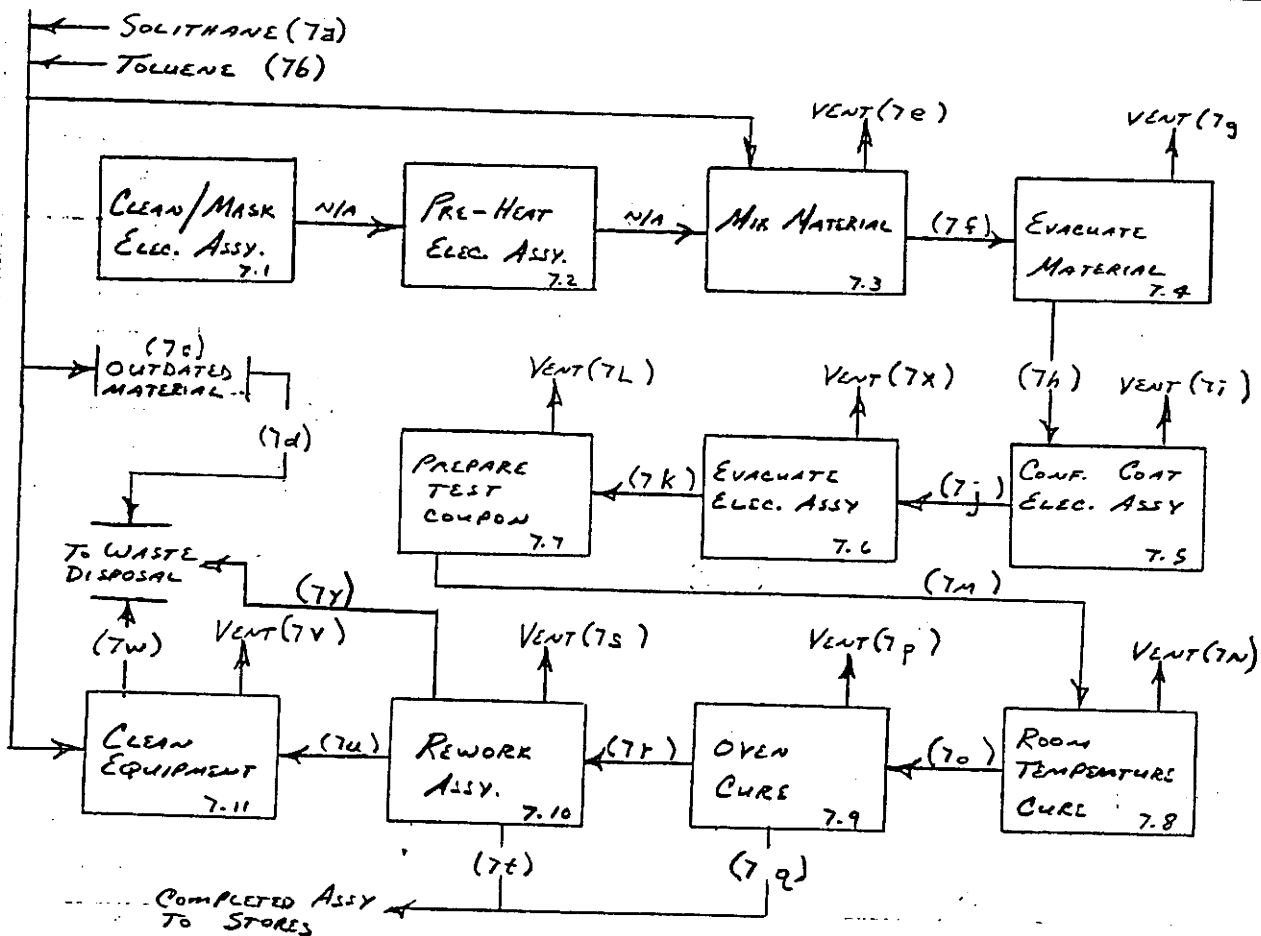
General Instructions:

For questions 7.04-7.06, provide a separate response for each process block flow diagram provided in questions 7.01, 7.02, and 7.03. Identify the process type from which the information is extracted.

PART A MANUFACTURING AND PROCESSING PROCESS TYPE DESCRIPTION

7.01 In accordance with the instructions, provide a process block flow diagram showing major (greatest volume) process type involving the listed substance.

CBI
☐ Process type CONFORMAL COAT ELECTRICAL ASSEMBLIES

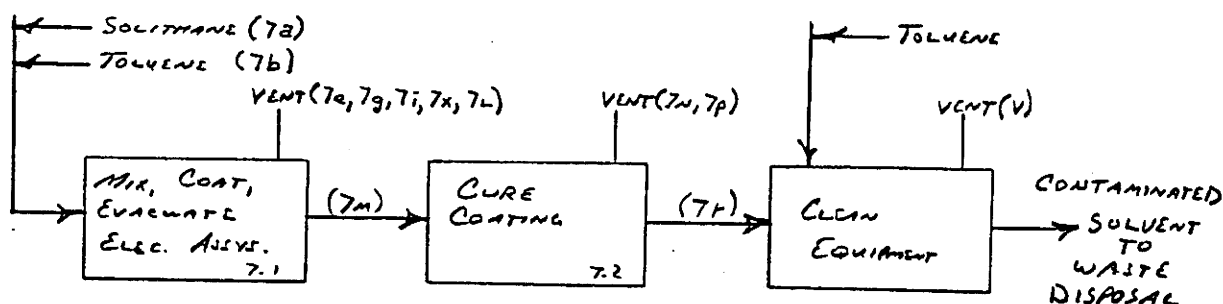


☐ Mark (X) this box if you attach a continuation sheet.

7.03 In accordance with the instructions, provide a process block flow diagram showing process emission streams and emission points that contain the listed substance and which, if combined, would total at least 90 percent of all facility emissions if not treated before emission into the environment. If all such emissions are released from one process type, provide a process block flow diagram using the instructions for question 7.01. If all such emissions are released from more than one process type, provide a process block flow diagram showing each process type as a separate block.

CBI

☐ Process type CONFORMAL COAT ELECTRICAL ASSEMBLIES



T D I Emissions

- 7E Mix Station Vent
- 7G Evacuation Vent
- 7I Conformal Coating Vent
- 7X Evacuation Vent
- 7L Test Station Vent
- 7N Curing Vent
- 7P Curing Oven Vent
- 7V Equipment Cleaning Vent

☐ Mark (X) this box if you attach a continuation sheet.

7.04 Describe the typical equipment types for each unit operation identified in your process block flow diagram(s). If a process block flow diagram is provided for more than one process type, photocopy this question and complete it separately for each process type.

CBI

☐ Process type Conformal Coat Electrical Assemblies

Unit Operation ID Number	Typical Equipment Type	Operating Temperature Range (°C)	Operating Pressure Range (mm Hg)	Vessel Composition
<u>7.1</u>	<u>Chemmark</u>	<u>Ambient</u>	<u>Atmospheric</u>	<u>NA</u>
<u>7.1</u>	<u>Tape</u>	<u>Ambient</u>	<u>"</u>	<u>NA</u>
<u>7.2</u>	<u>Oven</u>	<u>70°C</u>	<u>"</u>	<u>Steel</u>
<u>7.3</u>	<u>Mixing Dish</u>	<u>Ambient</u>	<u>"</u>	<u>NA</u>
<u>7.3</u>	<u>Glass Stirrer</u>	<u>"</u>	<u>"</u>	<u>Glass</u>
<u>7.3</u>	<u>Weighing Balance</u>	<u>"</u>	<u>"</u>	<u>NA</u>
<u>7.3</u>	<u>Gloves</u>	<u>"</u>	<u>"</u>	<u>NA</u>
<u>7.4</u>	<u>Thermovac Oven</u>	<u>"</u>	<u>UK</u>	<u>NA</u>
<u>7.5</u>	<u>Airbrush</u>	<u>"</u>	<u>Atmospheric</u>	<u>NA</u>
<u>7.6</u>	<u>Thermovac Oven</u>	<u>"</u>	<u>UK</u>	<u>NA</u>

☒ Mark (X) this box if you attach a continuation sheet.

7.04 Describe the typical equipment types for each unit operation identified in your process block flow diagram(s). If a process block flow diagram is provided for more than one process type, photocopy this question and complete it separately for each process type.

CBI

☐ Process type Conformal Coat Electrical Assemblies

Unit Operation ID Number	Typical Equipment Type	Operating Temperature Range (°C)	Operating Pressure Range (mm Hg)	Vessel Composition
<u>7.7</u>	<u>Paper Cups</u>	<u>Ambient</u>	<u>Atmospheric</u>	<u>Paper</u>
<u>7.8</u>	<u>Hooded Bench</u>	<u>Ambient</u>	<u>"</u>	<u>NA</u>
<u>7.9</u>	<u>Oven</u>	<u>70 °C</u>	<u>"</u>	<u>Steel</u>
<u>7.10</u>	<u>Artist Brush</u>	<u>Ambient</u>	<u>"</u>	<u>NA</u>
<u>7.11</u>	<u>Tray</u>	<u>Ambient</u>	<u>"</u>	<u>NA</u>
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

☐ Mark (X) this box if you attach a continuation sheet.

7.05 Describe each process stream identified in your process block flow diagram(s). If a process block flow diagram is provided for more than one process type, photocopy this question and complete it separately for each process type.

CBI

☐ Process type Conformal Coat Electrical Assemblies

Process Stream ID Code	Process Stream Description	Physical State ¹	Stream Flow (kg/yr)
<u>7E, 7G, 7I, 7K, 7L, 7N, 7P, 7S, 7V</u>	<u>Hooded Assembly Bench</u>	<u>GU</u>	<u>UK</u>
<u>7C</u>	<u>Outdated Solithane</u>	<u>OL</u>	<u>UK</u>
<u>7y</u>	<u>Residual Material</u>	<u>SY</u>	<u>UK</u>
<u>7W</u>	<u>Cured Solithane</u>	<u>SO</u>	<u>UK</u>
<u>7b</u>	<u>Toluene</u>	<u>OL</u>	<u>UK</u>
<u>7F, 7H, 7J, 7K, 7M, 7O</u>	<u>Solithane</u>	<u>OL</u>	<u>UK</u>

¹Use the following codes to designate the physical state for each process stream:

GC = Gas (condensable at ambient temperature and pressure)
 GU = Gas (uncondensable at ambient temperature and pressure)
 SO = Solid
 SY = Sludge or slurry
 AL = Aqueous liquid
 OL = Organic liquid
 IL = Immiscible liquid (specify phases, e.g., 90% water, 10% toluene)

☐ Mark (X) this box if you attach a continuation sheet.

7.06 Characterize each process stream identified in your process block flow diagram(s). If a process block flow diagram is provided for more than one process type, photocopy this question and complete it separately for each process type. (Refer to the CBI instructions for further explanation and an example.)

☐ Process type Conformal Coat Electrical Assemblies

a.	b.	c.	d.	e.
Process Stream ID Code	Known Compounds ¹	Concentrations ^{2,3} (% or ppm)	Other Expected Compounds	Estimated Concentrations (% or ppm)
7F, 7H, 7J	TDI/Toluene	NA	NA	UK
7K, 7M, 7O	" "	"	"	"
7C, 7Y, 7W	TDI/Toluene	NA	NA	UK
7E, 7G, 7I, 7X	TDI/Toluene	NA	NA	UK
7L, 7N, 7P, 7S, 7V	" "	"	"	"

7.06 continued below

☐ Mark (X) this box if you attach a continuation sheet.

7.06 (continued)

Not Applicable

¹For each additive package introduced into a process stream, specify the compounds that are present in each additive package, and the concentration of each component. Assign an additive package number to each additive package and list this number in column b. (Refer to the instructions for further explanation and an example. Refer to the glossary for the definition of additive package.)

<u>Additive Package Number</u>	<u>Components of Additive Package</u>	<u>Concentrations (% or ppm)</u>
<u>1</u>		
<u>2</u>		
<u>3</u>		
<u>4</u>		
<u>5</u>		

²Use the following codes to designate how the concentration was determined:

A = Analytical result

E = Engineering judgement/calculation

³Use the following codes to designate how the concentration was measured:

V = Volume

W = Weight

☐ Mark (X) this box if you attach a continuation sheet.

SECTION 8 RESIDUAL TREATMENT GENERATION, CHARACTERIZATION, TRANSPORTATION, AND
MANAGEMENT

General Instructions:

For questions 8.04-8.06, provide a separate response for each residual treatment block flow diagram provided in question 8.01, 8.02 or 8.03. Identify the process type from which the information is extracted.

For questions 8.05-8.33, the Stream Identification Codes are those process streams listed in either the Section 7 or Section 8 block flow diagrams which contain residuals for each applicable waste management method.

For questions 8.07-8.33, if residuals are combined before they are handled, list those Stream Identification Codes on the same line.

Questions 8.09-8.33 refer to the waste management activities involving the residuals identified in either the Section 7 or Section 8 block flow diagrams. Not all Stream Identification Codes used in the sample answers (e.g., for the incinerator questions) have corresponding process streams identified in the block flow diagram(s). These Stream Identification codes are for illustrative purposes only.

For questions 8.11-8.33, if you have provided the information requested on one of the EPA Office of Solid Waste surveys listed below within the three years prior to your reporting year, you may submit a copy or reasonable facsimile in lieu of answering those questions which the survey addresses. The applicable surveys are: (1) Hazardous Waste Treatment, Storage, Disposal, and Recycling Survey; (2) Hazardous Waste Generator Survey; or (3) Subtitle D Industrial Facility Mail Survey.

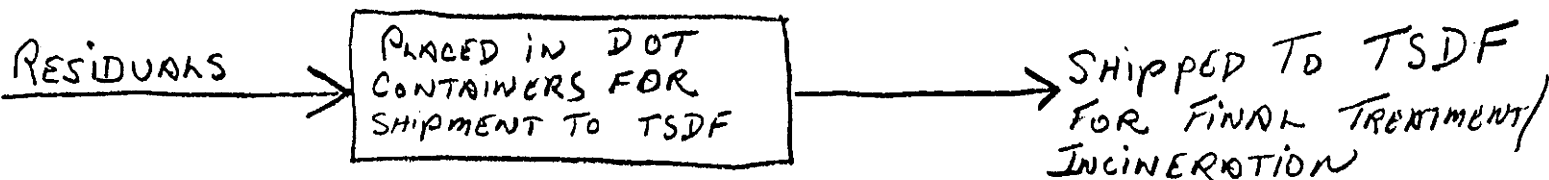
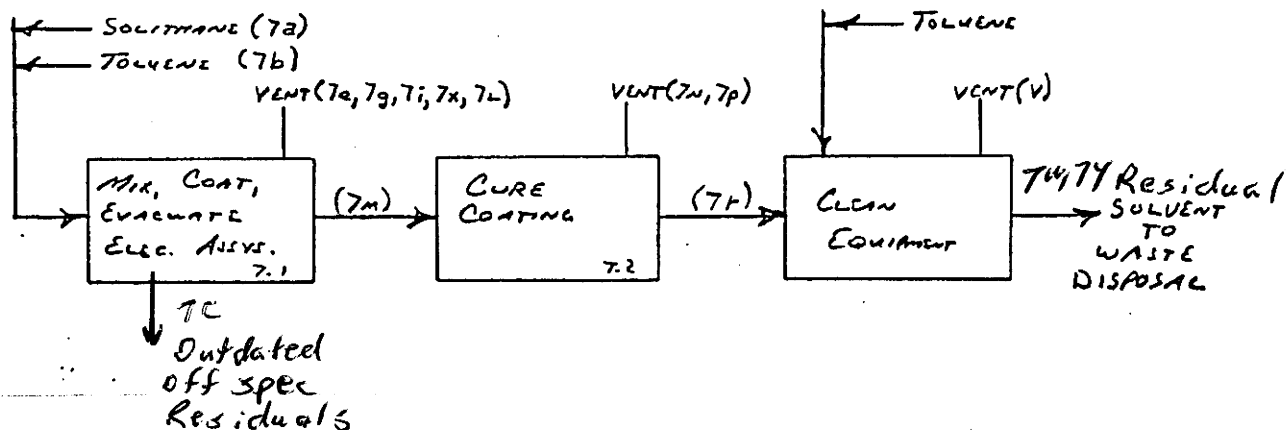
☐ Mark (X) this box if you attach a continuation sheet.

PART A RESIDUAL TREATMENT PROCESS DESCRIPTION

8.01 In accordance with the instructions, provide a residual treatment block flow diagram which describes the treatment process used for residuals identified in question 7.01.

CBI

☐ Process type Conformal Coat Electrical Assemblies



ALL RESIDUALS ARE STORED UNTILL SHIPPED OFF SITE TO A BROKER WHO INTURN WILL SHIP THE MATERIAL FOR FINAL TREATMENT OR INCINERATION. NO ON SITE TREATMENT OR INCINERATION OCCURES.

☐ Mark (X) this box if you attach a continuation sheet.

PART B RESIDUAL GENERATION AND CHARACTERIZATION

8.05 Characterize each process stream identified in your residual treatment block flow diagram(s). If a residual treatment block flow diagram is provided for more than one process type, photocopy this question and complete it separately for each process type. (Refer to the instructions for further explanation and an example.)

CBI ☐ Process type Conformal Coat Electrical Assemblies

a.	b.	c.	d.	e.	f.	g.
Stream ID Code	Type of Hazardous Waste ¹	Physical State of Residual ²	Known Compounds ³	Concentrations (% or ppm) ^{4,5,6}	Other Expected Compounds	Estimated Concentrations (% or ppm)
<u>7E, 7G, 7I</u>	<u>UK</u>	<u>GU</u>	<u>TDI / Toluene</u>	<u>UK</u>	<u>UK</u>	<u>UK</u>
<u>7X, 7L, 7N</u>		<u>"</u>	<u>" "</u>	<u>"</u>	<u>"</u>	<u>"</u>
<u>7P, 7S, 7V</u>		<u>"</u>	<u>" "</u>	<u>"</u>	<u>"</u>	<u>"</u>
<u>7C</u>	<u>I, T</u>	<u>OL</u>	<u>TDI</u>	<u>UK</u>	<u>UK</u>	<u>UK</u>
<u>7W, 7Y</u>	<u>I, T</u>	<u>SY</u>	<u>TDI / Toluene</u>	<u>UK</u>	<u>UK</u>	<u>UK</u>

8.05 continued below

☐ Mark (X) this box if you attach a continuation sheet.

8.05 (continued)

¹Use the following codes to designate the type of hazardous waste:

I = Ignitable
C = Corrosive
R = Reactive
E = EP toxic
T = Toxic
H = Acutely hazardous

²Use the following codes to designate the physical state of the residual:

GC = Gas (condensable at ambient temperature and pressure)
GU = Gas (uncondensable at ambient temperature and pressure)
SO = Solid
SY = Sludge or slurry
AL = Aqueous liquid
OL = Organic liquid
IL = Immiscible liquid (specify phases, e.g., 90% water, 10% toluene)

8.05 continued below

☐ Mark (X) this box if you attach a continuation sheet.

8.05 (continued)

Not Applicable

³For each additive package introduced into a process stream, specify the compounds that are present in each additive package, and the concentration of each component. Assign an additive package number to each additive package and list this number in column d. (Refer to the instructions for further explanation and an example. Refer to the glossary for the definition of additive package.)

<u>Additive Package Number</u>	<u>Components of Additive Package</u>	<u>Concentrations (% or ppm)</u>
<u>1</u>	<hr/> <hr/> <hr/>	<hr/> <hr/> <hr/>
<u>2</u>	<hr/> <hr/> <hr/>	<hr/> <hr/> <hr/>
<u>3</u>	<hr/> <hr/> <hr/>	<hr/> <hr/> <hr/>
<u>4</u>	<hr/> <hr/> <hr/>	<hr/> <hr/> <hr/>
<u>5</u>	<hr/> <hr/> <hr/>	<hr/> <hr/> <hr/>

⁴Use the following codes to designate how the concentration was determined:

A = Analytical result

E = Engineering judgement/calculation

8.05 continued below

☐ Mark (X) this box if you attach a continuation sheet.

8.05 (continued)

Not Applicable

⁵Use the following codes to designate how the concentration was measured:

V = Volume

W = Weight

⁶Specify the analytical test methods used and their detection limits in the table below. Assign a code to each test method used and list those codes in column e.

<u>Code</u>	<u>Method</u>	<u>Detection Limit</u> (\pm ug/l)
<u>1</u>		
<u>2</u>		
<u>3</u>		
<u>4</u>		
<u>5</u>		
<u>6</u>		

☐ Mark (X) this box if you attach a continuation sheet.

8.06 Characterize each process stream identified in your residual treatment block flow diagram(s). If a residual treatment block flow diagram is provided for more than one process type, photocopy this question and complete it separately for each process type. (Refer to the instructions for further explanation and an example.)

CBI

☐ Process type Conformal Coat Electrical Assemblies

a.	b.	c.	d.	e.		f.	g.
Stream ID Code	Waste Description Code ¹	Management Method Code ²	Residual Quantities (kg/yr)	Management of Residual (%)		Costs for Off-Site Management (per kg)	Changes in Management Methods
<u>7c</u>	<u>B70</u>	<u>11 I</u>	<u>UK</u>	<u>0</u>	<u>100</u>	<u>UK</u>	<u>UK</u>
<u>7w</u>	<u>B76</u>	<u>11 I</u>	<u>UK</u>	<u>0</u>	<u>100</u>	<u>UK</u>	<u>UK</u>
<u>7y</u>	<u>B76</u>	<u>11 I</u>	<u>UK</u>	<u>0</u>	<u>100</u>	<u>UK</u>	<u>UK</u>
<u>7E, 7G, 7I, 7K, 7L, 7N, 7P, 7Y</u>	<u>B91</u>	<u>M5</u>	<u>UK</u>	<u>UK</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

¹Use the codes provided in Exhibit 8-1 to designate the waste descriptions

²Use the codes provided in Exhibit 8-2 to designate the management methods

☐ Mark (X) this box if you attach a continuation sheet.

EXHIBIT 8-1.
(Refers to question 8.06(b))

WASTE DESCRIPTION CODES

These waste description codes were developed specifically for this survey to supplement the descriptions listed with the RCRA and other waste codes. (These waste description codes are not regulatory definitions.)

WASTE DESCRIPTION CODES FOR HAZARDOUS WASTE DESCRIBED BY A SINGLE RCRA F, K, P, OR U WASTE CODE

A01 Spent solvent (F001-F005, K086)	A06 Contaminated soil or cleanup residue	A10 Incinerator ash
A02 Other organic liquid (F001-F005, K086)	A07 Other F or K waste, exactly as described*	A11 Solidified treatment residue
A03 Still bottom (F001-F005, K086)	A08 Concentrated off-spec or discarded product	A12 Other treatment residue (specify in "Facility Notes")
A04 Other organic sludge (F001-F005, K086)	A09 Empty containers	A13 Other untreated waste (specify in "Facility Notes")
A05 Wastewater or aqueous mixture		

*"Exactly as described" means that the waste matches the description of the RCRA waste code.

INORGANIC LIQUIDS—Waste that is primarily inorganic and highly fluid (e.g., aqueous), with low suspended inorganic solids and low organic content.

- B01 Aqueous waste with low solvents
- B02 Aqueous waste with low other toxic organics
- B03 Spent acid with metals
- B04 Spent acid without metals
- B05 Acidic aqueous waste
- B06 Caustic solution with metals but no cyanides
- B07 Caustic solution with metals and cyanides
- B08 Caustic solution with cyanides but no metals
- B09 Spent caustic
- B10 Caustic aqueous waste
- B11 Aqueous waste with reactive sulfides
- B12 Aqueous waste with other reactives (e.g., explosives)
- B13 Other aqueous waste with high dissolved solids
- B14 Other aqueous waste with low dissolved solids
- B15 Scrubber water
- B16 Leachate
- B17 Waste liquid mercury
- B18 Other inorganic liquid (specify in "Facility Notes")

INORGANIC SLUDGES—Waste that is primarily inorganic, with moderate-to-high water content and low organic content; pumpable.

- B19 Lime sludge without metals
- B20 Lime sludge with metals/metal hydroxide sludge
- B21 Wastewater treatment sludge with toxic organics
- B22 Other wastewater treatment sludge
- B23 Untreated plating sludge without cyanides
- B24 Untreated plating sludge with cyanides
- B25 Other sludge with cyanides
- B26 Sludge with reactive sulfides
- B27 Sludge with other reactives
- B28 Degreasing sludge with metal scale or filings
- B29 Air pollution control device sludge (e.g., fly ash, wet scrubber sludge)
- B30 Sediment or lagoon dragout contaminated with organics
- B31 Sediment or lagoon dragout contaminated with inorganics only

- B32 Drilling mud
- B33 Asbestos slurry or sludge
- B34 Chloride or other brine sludge
- B35 Other inorganic sludge (specify in "Facility Notes")

INORGANIC SOLIDS—Waste that is primarily inorganic and solid, with low organic content and low-to-moderate water content; not pumpable.

- B36 Soil contaminated with organics
- B37 Soil contaminated with inorganics only
- B38 Ash, slag, or other residue from incineration of wastes
- B39 Other "dry" ash, slag, or thermal residue
- B40 "Dry" lime or metal hydroxide solids chemically "fixed"
- B41 "Dry" lime or metal hydroxide solids not "fixed"
- B42 Metal scale, filings, or scrap
- B43 Empty or crushed metal drums or containers
- B44 Batteries or battery parts, casings, cores
- B45 Spent solid filters or adsorbents
- B46 Asbestos solids and debris
- B47 Metal-cyanide salts/chemicals
- B48 Reactive cyanide salts/chemicals
- B49 Reactive sulfide salts/chemicals
- B50 Other reactive salts/chemicals
- B51 Other metal salts/chemicals
- B52 Other waste inorganic chemicals
- B53 Lab packs of old chemicals only
- B54 Lab packs of debris only
- B55 Mixed lab packs
- B56 Other inorganic solids (specify in "Facility Notes")

INORGANIC GASES—Waste that is primarily inorganic with a low organic content and is a gas at atmospheric pressure.

- B57 Inorganic gases

ORGANIC LIQUIDS—Waste that is primarily organic and is highly fluid, with low inorganic solids content and low-to-moderate water content.

- B58 Concentrated solvent-water solution
- B59 Halogenated (e.g., chlorinated) solvent
- B60 Nonhalogenated solvent

- B61 Halogenated/nonhalogenated solvent mixture
- B62 Oil-water emulsion or mixture
- B63 Waste oil
- B64 Concentrated aqueous solution of other organics
- B65 Concentrated phenolics
- B66 Organic paint, ink, lacquer, or varnish
- B67 Adhesives or epoxies
- B68 Paint thinner or petroleum distillates
- B69 Reactive or polymerizable organic liquid
- B70 Other organic liquid (specify in "Facility Notes")

ORGANIC SLUDGES—Waste that is primarily organic, with low-to-moderate inorganic solids content and water content; pumpable.

- B71 Still bottoms of halogenated (e.g., chlorinated) solvents or other organic liquids
- B72 Still bottoms of nonhalogenated solvents or other organic liquids
- B73 Oily sludge
- B74 Organic paint or ink sludge
- B75 Reactive or polymerizable organics
- B76 Resins, tars, or tarry sludge
- B77 Biological treatment sludge
- B78 Sewage or other untreated biological sludge
- B79 Other organic sludge (specify in "Facility Notes")

ORGANIC SOLIDS—Waste that is primarily organic and solid, with low-to-moderate inorganic content and water content; not pumpable.

- B80 Halogenated pesticide solid
- B81 Nonhalogenated pesticide solid
- B82 Solid resins or polymerized organics
- B83 Spent carbon
- B84 Reactive organic solid
- B85 Empty fiber or plastic containers
- B86 Lab packs of old chemicals only
- B87 Lab packs of debris only
- B88 Mixed lab packs
- B89 Other halogenated organic solid
- B90 Other nonhalogenated organic solid

ORGANIC GASES—Waste that is primarily organic with low-to-moderate inorganic content and is a gas at atmospheric pressure.

- B91 Organic gases

EXHIBIT 8-2.
(Refers to question 8.06(c))

MANAGEMENT METHODS

- M1 = Discharge to publicly owned wastewater treatment works
M2 = Discharge to surface water under NPDES
M3 = Discharge to off-site, privately owned wastewater treatment works
M4 = Scrubber: a) caustic; b) water; c) other
M5 = Vent to: a) atmosphere; b) flare; c) other (specify) _____
M6 = Other (specify) _____

TREATMENT AND RECYCLING

Incineration/thermal treatment

- 1I Liquid injection
2I Rotary or rocking kiln
3I Rotary kiln with a liquid injection unit
4I Two stage
5I Fixed hearth
6I Multiple hearth
7I Fluidized bed
8I Infrared
9I Fume/vapor
10I Pyrolytic destructor
11I Other incineration/thermal treatment

Reuse as fuel

- 1RF Cement kiln
2RF Aggregate kiln
3RF Asphalt kiln
4RF Other kiln
5RF Blast furnace
6RF Sulfur recovery furnace
7RF Smelting, melting, or refining furnace
8RF Coke oven
9RF Other industrial furnace
10RF Industrial boiler
11RF Utility boiler
12RF Process heater
13RF Other reuse as fuel unit

Fuel Blending

- 1FB Fuel blending

Solidification

- 1S Cement or cement/silicate processes
2S Pozzolan processes
3S Asphaltic processes
4S Thermoplastic techniques
5S Organic polymer techniques
6S Jacketing (macro-encapsulation)
7S Other solidification

Recovery of solvents and liquid organics for reuse

- 1SR Fractionation
2SR Batch still distillation
3SR Solvent extraction
4SR Thin-film evaporation
5SR Filtration
6SR Phase separation
7SR Dessication
8SR Other solvent recovery

Recovery of metals

- 1MR Activated carbon (for metals recovery)
2MR Electrodialysis (for metals recovery)
3MR Electrolytic metal recovery
4MR Ion exchange (for metals recovery)
5MR Reverse osmosis (for metals recovery)
6MR Solvent extraction (for metals recovery)
7MR Ultrafiltration (for metals recovery)
8MR Other metals recovery

Wastewater Treatment

After each wastewater treatment type listed below (1WT - 66WT) specify a) tank; or b) surface impoundment (i.e., 63WTa)

Equalization

- 1WT Equalization

Cyanide oxidation

- 2WT Alkaline chlorination
3WT Ozone
4WT Electrochemical
5WT Other cyanide oxidation

General oxidation (including disinfection)

- 6WT Chlorination
7WT Ozonation
8WT UV radiation
9WT Other general oxidation

Chemical precipitation¹

- 10WT Lime
11WT Sodium hydroxide
12WT Soda ash
13WT Sulfide
14WT Other chemical precipitation

Chromium reduction

- 15WT Sodium bisulfite
16WT Sulfur dioxide

EXHIBIT 8-2. (continued)

MANAGEMENT METHODS

17WT Ferrous sulfate
18WT Other chromium reduction

Complexed metals treatment (other than
chemical precipitation by pH adjustment)
19WT Complexed metals treatment

Emulsion breaking
20WT Thermal
21WT Chemical
22WT Other emulsion breaking

Adsorption
23WT Carbon adsorption
24WT Ion exchange
25WT Resin adsorption
26WT Other adsorption

Stripping
27WT Air stripping
28WT Steam stripping
29WT Other stripping

Evaporation
30WT Thermal
31WT Solar
32WT Vapor recompression
33WT Other evaporation

Filtration
34WT Diatomaceous earth
35WT Sand
36WT Multimedia
37WT Other filtration

Sludge dewatering
38WT Gravity thickening
39WT Vacuum filtration
40WT Pressure filtration (belt, plate
and frame, or leaf)
41WT Centrifuge
42WT Other sludge dewatering

Air flotation
43WT Dissolved air flotation
44WT Partial aeration
45WT Air dispersion
46WT Other air flotation

Oil skimming
47WT Gravity separation

48WT Coalescing plate separation
49WT Other oil skimming

Other liquid phase separation
50WT Decanting
51WT Other liquid phase separation

Biological treatment
52WT Activated sludge
53WT Fixed film-trickling filter
54WT Fixed film-rotating contactor
55WT Lagoon or basin, aerated
56WT Lagoon, facultative
57WT Anaerobic
58WT Other biological treatment

Other wastewater treatment
59WT Wet air oxidation
60WT Neutralization
61WT Nitrification
62WT Denitrification
63WT Flocculation and/or coagulation
64WT Settling (clarification)
65WT Reverse osmosis
66WT Other wastewater treatment

OTHER WASTE TREATMENT

1TR Other treatment
2TR Other recovery for reuse

ACCUMULATION

1A Containers
2A Tanks

STORAGE

1ST Container (i.e., barrel, drum)
2ST Tank
3ST Waste pile
4ST Surface impoundment
5ST Other storage

DISPOSAL

1D Landfill
2D Land treatment
3D Surface impoundment (to be closed
as a landfill)
4D Underground injection well

¹ Chemical precipitation is a treatment operation whereby the pH of a waste is adjusted to the range necessary for removal (precipitation) of contaminants. However, if the pH is adjusted solely to achieve a neutral pH, THE OPERATION SHOULD BE CONSIDERED NEUTRALIZATION (60WT).

8.22 Describe the combustion chamber design parameters for each of the three largest (by capacity) incinerators that are used on-site to burn the residuals identified in your process block or residual treatment block flow diagram(s).

☐ Response not required for TDI

Incinerator	Combustion Chamber Temperature (°C)		Location of Temperature Monitor		Residence Time In Combustion Chamber (seconds)	
	Primary	Secondary	Primary	Secondary	Primary	Secondary
1						
2						
3						

Indicate if Office of Solid Waste survey has been submitted in lieu of response by circling the appropriate response.

Yes 1

No 2

8.23 Complete the following table for the three largest (by capacity) incinerators that are used on-site to burn the residuals identified in your process block or residual treatment block flow diagram(s).

☐ Not Applicable

Incinerator	Air Pollution Control Device ¹	Types of Emissions Data Available
1		
2		
3		

Indicate if Office of Solid Waste survey has been submitted in lieu of response by circling the appropriate response.

Yes 1

No 2

¹Use the following codes to designate the air pollution control device:

S = Scrubber (include type of scrubber in parenthesis)
 E = Electrostatic precipitator
 O = Other (specify) _____

☐ Mark (X) this box if you attach a continuation sheet.

SECTION 9 WORKER EXPOSURE

General Instructions:

Questions 9.03-9.25 apply only to those processes and workers involved in manufacturing or processing the listed substance. Do not include workers involved in residual waste treatment unless they are involved in this treatment process on a regular basis (i.e., exclude maintenance workers, construction workers, etc.).

☐ Mark (X) this box if you attach a continuation sheet.

PART A EMPLOYMENT AND POTENTIAL EXPOSURE PROFILE

9.01 Mark (X) the appropriate column to indicate whether your company maintains records on the following data elements for hourly and salaried workers. Specify for each data element the year in which you began maintaining records and the number of years the records for that data element are maintained. (Refer to the instructions for further explanation and an example.)

☐ CBI

Data Element	Data are Maintained for:		Year in Which Data Collection Began	Number of Years Records Are Maintained
	Hourly Workers	Salaried Workers		
Date of hire	<u>X</u>	<u>X</u>	<u>1952</u>	<u>Indef</u>
Age at hire	<u>X</u>	<u>x</u>	<u>1952</u>	<u>Indef</u>
Work history of individual before employment at your facility	<u>x</u>	<u>X</u>	<u>1952</u>	<u>Indef</u>
Sex	<u>x</u>	<u>X</u>	<u>1952</u>	<u>Indef</u>
Race	<u>X</u>	<u>X</u>	<u>1961</u>	<u>Indef</u>
Job titles	<u>X</u>	<u>X</u>	<u>1952</u>	<u>Indef</u>
Start date for each job title	<u>X</u>	<u>X</u>	<u>1952</u>	<u>Indef</u>
End date for each job title	<u>X</u>	<u>X</u>	<u>1952</u>	<u>Indef</u>
Work area industrial hygiene monitoring data	<u>X</u>	<u>X</u>	<u>1980</u>	<u>Indef</u>
Personal employee monitoring data	<u>X</u>	<u>X</u>	<u>1980</u>	<u>Indef</u>
Employee medical history	<u>X</u>	<u>X</u>	<u>1952</u>	<u>Indef</u>
Employee smoking history	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Accident history	<u>X</u>	<u>X</u>	<u>1952</u>	<u>Indef</u>
Retirement date	<u>X</u>	<u>X</u>	<u>1952</u>	<u>Indef</u>
Termination date	<u>X</u>	<u>x</u>	<u>1952</u>	<u>Indef</u>
Vital status of retirees	<u>X</u>	<u>X</u>	<u>1952</u>	<u>Indef</u>
Cause of death data	<u>X</u>	<u>X</u>	<u>1952</u>	<u>Indef</u>

☐ Mark (X) this box if you attach a continuation sheet.

9.02 In accordance with the instructions, complete the following table for each activity in which you engage.

CBI

☐

a.	b.	c.	d.	e.
Activity	Process Category	Yearly Quantity (kg)	Total Workers	Total Worker-Hours
Manufacture of the listed substance	Enclosed	<u>Not App.</u>	<u>Not App.</u>	<u>Not App.</u>
	Controlled Release	<u>"</u>	<u>"</u>	<u>"</u>
	Open	<u>"</u>	<u>"</u>	<u>"</u>
On-site use as reactant	Enclosed	<u>"</u>	<u>"</u>	<u>"</u>
	Controlled Release	<u>"</u>	<u>"</u>	<u>"</u>
	Open	<u>"</u>	<u>"</u>	<u>"</u>
On-site use as nonreactant	Enclosed	<u>"</u>	<u>"</u>	<u>"</u>
	Controlled Release	<u>"</u>	<u>"</u>	<u>"</u>
	Open	<u>"</u>	<u>"</u>	<u>"</u>
On-site preparation of products	Enclosed	<u>"</u>	<u>"</u>	<u>"</u>
	Controlled Release	<u>"</u>	<u>"</u>	<u>"</u>
	Open	<u>24.5 kg</u>	<u>NA</u>	<u>NA</u>

☐ Mark (X) this box if you attach a continuation sheet.

9.03 Provide a descriptive job title for each labor category at your facility that encompasses workers who may potentially come in contact with or be exposed to the listed substance.

CBI

☐

Labor Category

Descriptive Job Title

A

Assembly Specialist

B

C

D

E

F

G

H

I

J

☐ Mark (X) this box if you attach a continuation sheet.

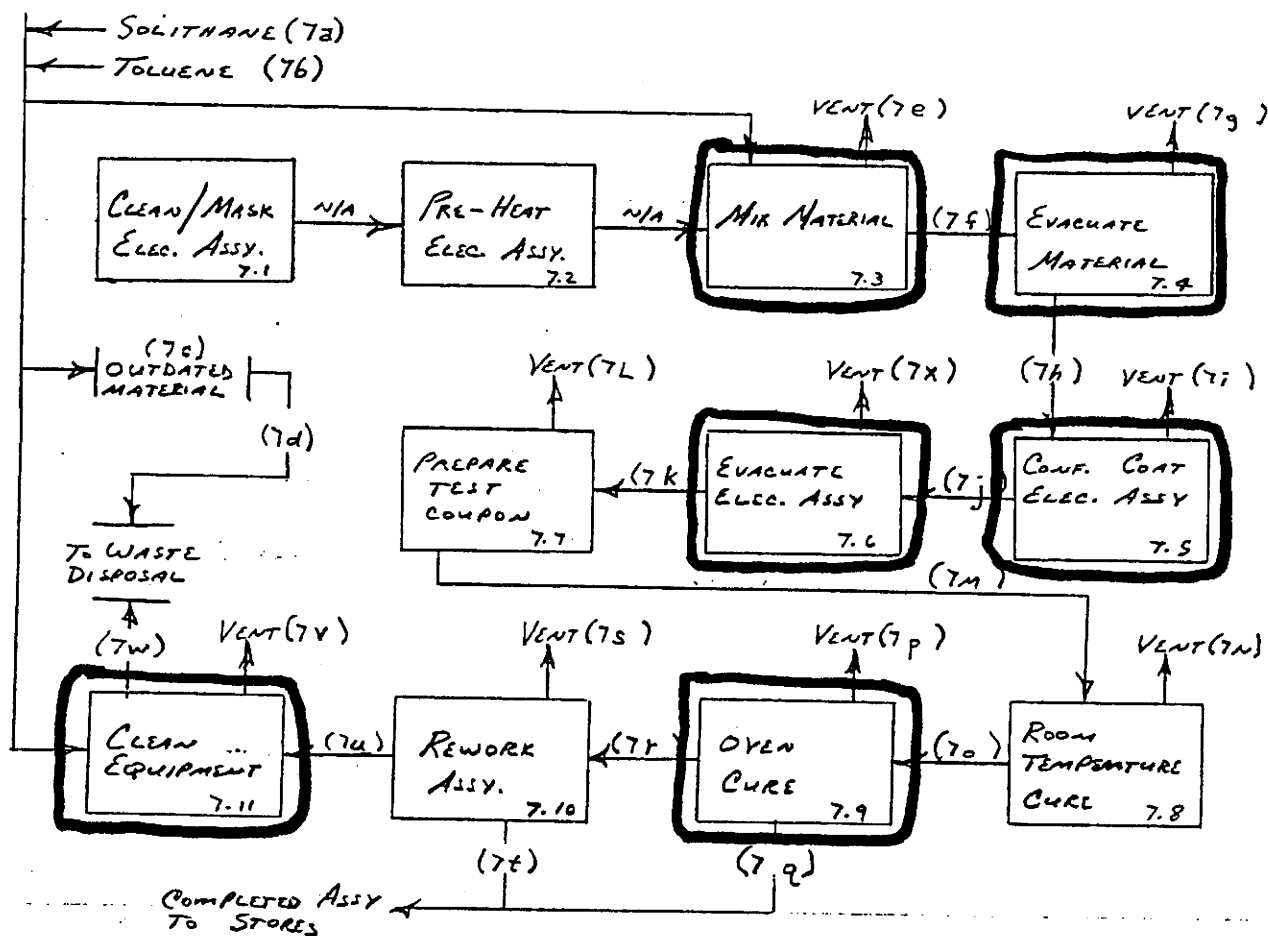
9.04 In accordance with the instructions, provide your process block flow diagram(s) and indicate associated work areas.

CBI

☐

Process type

CONFORMAL COAT ELECTRICAL ASSEMBLIES



☐ Mark (X) this box if you attach a continuation sheet.

- 9.05 Describe the various work area(s) shown in question 9.04 that encompass workers who may potentially come in contact with or be exposed to the listed substance. Add any additional areas not shown in the process block flow diagram in question 7.01 or 7.02. Photocopy this question and complete it separately for each process type.

CBI

☐ Process type Conformal Coat Electrical Assemblies

Work Area ID

Description of Work Areas and Worker Activities

- | | |
|----------|---|
| 1 (7.3) | (7.3) Hooded Work Bench - operator mixes |
| 2 (7.4) | materials in 25 - 250 gm. batches. |
| 3 (7.5) | (7.4) Thermovac Oven - operator places material |
| 4 (7.6) | in evacuation chamber for 15 min. |
| 5 (7.9) | (7.5) Hooded Work Bench - operator uses air |
| 6 (7.11) | brush to apply conformal coating. |
| 7 | (7.6) Thermovac Oven - operator places unit |
| 8 | in evacuation chamber for 15 min. |
| 9 | (7.9) Oven - operator places unit in oven @ 70°C (3hrs) |
| 10 | (7.11) Hooded Work Bench - Operator removes |
| | excess cured material from mixing |
| | equipment. |

☐ Mark (X) this box if you attach a continuation sheet.

9.06 Complete the following table for each work area identified in question 9.05, and for each labor category at your facility that encompasses workers who may potentially come in contact with or be exposed to the listed substance. Photocopy this question and complete it separately for each process type and work area.

CBI

☐ Process type Conformal Coat Electrical Assemblies

Work area Chem Lab

Labor Category	Number of Workers Exposed	Mode of Exposure (e.g., direct skin contact)	Physical State of Listed Substance ¹	Average Length of Exposure Per Day ²	Number of Days per Year Exposed
<u>A</u>	<u>1</u>	<u>Inhalation</u>	<u>OL</u>	<u>B</u>	<u>200</u>

¹Use the following codes to designate the physical state of the listed substance at the point of exposure:

GC = Gas (condensable at ambient temperature and pressure)
 GU = Gas (uncondensable at ambient temperature and pressure; includes fumes, vapors, etc.)
 SO = Solid

SY = Sludge or slurry
 AL = Aqueous liquid
 OL = Organic liquid
 IL = Immiscible liquid
 (specify phases, e.g., 90% water, 10% toluene)

²Use the following codes to designate average length of exposure per day:

A = 15 minutes or less
 B = Greater than 15 minutes, but not exceeding 1 hour
 C = Greater than one hour, but not exceeding 2 hours

D = Greater than 2 hours, but not exceeding 4 hours
 E = Greater than 4 hours, but not exceeding 8 hours
 F = Greater than 8 hours

☐ Mark (X) this box if you attach a continuation sheet.

9.07 For each labor category represented in question 9.06, indicate the 8-hour Time Weighted Average (TWA) exposure levels and the 15-minute peak exposure levels. Photocopy this question and complete it separately for each process type and work area.

CBI

☐ Process type Conformal Coat Electrical Assemblies

Work area Chem Lab

<u>Labor Category</u>	<u>8-hour TWA Exposure Level (ppm, mg/m³, other-specify)</u>	<u>15-Minute Peak Exposure Level (ppm, mg/m³, other-specify)</u>
<u>A</u>	<u>NA</u>	<u>NA</u>

☐ Mark (X) this box if you attach a continuation sheet.

PART B WORK PLACE MONITORING PROGRAM

9.08 If you monitor worker exposure to the listed substance, complete the following table.

CBI

☐

Sample/Test	Work Area ID	Testing Frequency (per year)	Number of Samples (per test)	Who Samples ¹	Analyzed In-House (Y/N)	Number of Years Records Maintained
Personal breathing zone	NA	NA	NA	A	N	Indef
General work area (air)	NA	NA	NA	A	N	Indef
Wipe samples	NA _{pp}	NA _{pp}	NA _{pp}	NA _{pp}	NA _{pp}	NA _{pp}
Adhesive patches	NA _{pp}	NA _{pp}	NA _{pp}	NA _{pp}	NA _{pp}	NA _{pp}
Blood samples	NA _{pp}	NA _{pp}	NA _{pp}	NA _{pp}	NA _{pp}	NA _{pp}
Urine samples	NA _{pp}	NA _{pp}	NA _{pp}	NA _{pp}	NA _{pp}	NA _{pp}
Respiratory samples	NA _{pp}	NA _{pp}	NA _{pp}	NA _{pp}	NA _{pp}	NA _{pp}
Allergy tests	NA _{pp}	NA _{pp}	NA _{pp}	NA _{pp}	NA _{pp}	NA _{pp}
Other (specify)						
	NA _{pp}	NA _{pp}	NA _{pp}	NA _{pp}	NA _{pp}	NA _{pp}
Other (specify)	NA _{pp}	NA _{pp}	NA _{pp}	NA _{pp}	NA _{pp}	NA _{pp}
Other (specify)	NA _{pp}	NA _{pp}	NA _{pp}	NA _{pp}	NA _{pp}	NA _{pp}

¹Use the following codes to designate who takes the monitoring samples:

A = Plant industrial hygienist

B = Insurance carrier

C = OSHA consultant

D = Other (specify) _____

☐ Mark (X) this box if you attach a continuation sheet.

9.09 For each sample type identified in question 9.08, describe the type of sampling and analytical methodology used for each type of sample.

Sample Type	Sampling and Analytical Methodology
NA	NA

9.10 If you conduct personal and/or ambient air monitoring for the listed substance, specify the following information for each equipment type used.

Equipment Type ¹	Detection Limit ²	Manufacturer	Averaging Time (hr)	Model Number
D	0.007A	Gillian	< 7 hr.	HFS 113A

¹Use the following codes to designate personal air monitoring equipment types:

- A = Passive dosimeter
- B = Detector tube
- C = Charcoal filtration tube with pump
- D = Other (specify) _____ NIOSH 141

Use the following codes to designate ambient air monitoring equipment types:

- E = Stationary monitors located within work area
- F = Stationary monitors located within facility
- G = Stationary monitors located at plant boundary
- H = Mobile monitoring equipment (specify) _____
- I = Other (specify) _____

²Use the following codes to designate detection limit units:

- A = ppm
- B = Fibers/cubic centimeter (f/cc)
- C = Micrograms/cubic meter (μm^3)

☐ Mark (X) this box if you attach a continuation sheet.

9.11 If you conduct routine medical tests for monitoring the health effects of exposure to the listed substance, specify the type and frequency of the tests.

CBI

☐

Test Description

Frequency
(weekly, monthly, yearly, etc.)

Not Applicable

Not Applicable

☐ Mark (X) this box if you attach a continuation sheet.

PART C ENGINEERING CONTROLS

9.12 Describe the engineering controls that you use to reduce or eliminate worker exposure to the listed substance. Photocopy this question and complete it separately for each process type and work area.

CBI

☐ Process type Conformal Coat Electrical Assemblies

Work area Chem Lab

<u>Engineering Controls</u>	<u>Used (Y/N)</u>	<u>Year Installed</u>	<u>Upgraded (Y/N)</u>	<u>Year Upgraded</u>
Ventilation:				
Local exhaust	<u>Y</u>	<u>UK</u>	<u>N</u>	<u>N App</u>
General dilution	<u>Not App</u>	<u>Not App</u>	<u>Not App</u>	<u>N App</u>
Other (specify) _____	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Vessel emission controls	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Mechanical loading or packaging equipment	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Other (specify) _____	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>

☐ Mark (X) this box if you attach a continuation sheet.

9.13 Describe all equipment or process modifications you have made within the 3 years prior to the reporting year that have resulted in a reduction of worker exposure to the listed substance. For each equipment or process modification described, state the percentage reduction in exposure that resulted. Photocopy this question and complete it separately for each process type and work area.

CBI

☐ Process type Conformal Coat Electrical Assemblies
Work area Chem Lab

Equipment or Process Modification	Reduction in Worker Exposure Per Year (%)
NA	NA

☐ Mark (X) this box if you attach a continuation sheet.

PART D PERSONAL PROTECTIVE AND SAFETY EQUIPMENT

9.14 Describe the personal protective and safety equipment that your workers wear or use in each work area in order to reduce or eliminate their exposure to the listed substance. Photocopy this question and complete it separately for each process type and work area.

CBI

☐ Process type Conformal Coat Electrical Assemblies

Work area Chem Lab

<u>Equipment Types</u>	<u>Wear or Use (Y/N)</u>
Respirators	<u>N</u>
Safety goggles/glasses	<u>Y</u>
Face shields	<u>N</u>
Coveralls	<u>N</u>
Bib aprons	<u>N</u>
Chemical-resistant gloves	<u>Y</u>
Other (specify)	
_____	NA
_____	NA

☐ Mark (X) this box if you attach a continuation sheet.

9.15 If workers use respirators when working with the listed substance, specify for each process type, the work areas where the respirators are used, the type of respirators used, the average usage, whether or not the respirators were fit tested, and the type and frequency of the fit tests. Photocopy this question and complete it separately for each process type.

CBI

☐

Process type

Not Applicable

<u>Work Area</u>	<u>Respirator Type</u>	<u>Average Usage¹</u>	<u>Fit Tested (Y/N)</u>	<u>Type of Fit Test²</u>	<u>Frequency of Fit Tests (per year)</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

¹Use the following codes to designate average usage:

A = Daily

B = Weekly

C = Monthly

D = Once a year

E = Other (specify) _____

²Use the following codes to designate the type of fit test:

QL = Qualitative

QT = Quantitative

☐

Mark (X) this box if you attach a continuation sheet.

PART E WORK PRACTICES

- 9.19 Describe all of the work practices and administrative controls used to reduce or eliminate worker exposure to the listed substance (e.g., restrict entrance only to authorized workers, mark areas with warning signs, insure worker detection and monitoring practices, provide worker training programs, etc.). Photocopy this question and complete it separately for each process type and work area.

CBI



Process type Conformal Coat Electrical Assemblies

Work area Chem Lab

All employees are trained in the use of
chemicals as part of our compliance
with OSHA 1910.1200.

- 9.20 Indicate (X) how often you perform each housekeeping task used to clean up routine leaks or spills of the listed substance. Photocopy this question and complete it separately for each process type and work area.

Process type Conformal Coat Electrical Assemblies

Work area Chem Lab

<u>Housekeeping Tasks</u>	<u>Less Than Once Per Day</u>	<u>1-2 Times Per Day</u>	<u>3-4 Times Per Day</u>	<u>More Than 4 Times Per Day</u>
Sweeping	_____	<u>X</u>	_____	_____
Vacuuming	_____	_____	_____	_____
Water flushing of floors	<u>X</u>	_____	_____	_____
Other (specify)	_____	_____	_____	_____

☐ Mark (X) this box if you attach a continuation sheet.

9.21 Do you have a written medical action plan for responding to routine or emergency exposure to the listed substance?

Routine exposure

Response Not Required for TDI

Yes

No

Emergency exposure

Yes

No

If yes, where are copies of the plan maintained?

Routine exposure: _____

Emergency exposure: _____

9.22 Do you have a written leak and spill cleanup plan that addresses the listed substance? Circle the appropriate response.

☒ Yes

No

If yes, where are copies of the plan maintained? Environmental Affairs Office

Has this plan been coordinated with state or local government response organizations? Circle the appropriate response.

Yes

☒ No

9.23 Who is responsible for monitoring worker safety at your facility? Circle the appropriate response.

Response Not Required for TDI

Plant safety specialist

Insurance carrier

OSHA consultant

Other (specify) _____

☐ Mark (X) this box if you attach a continuation sheet.

SECTION 10 ENVIRONMENTAL RELEASE

General Instructions:

Complete Part E (questions 10.23-10.35) for each non-routine release involving the listed substance that occurred during the reporting year. Report on all releases that are equal to or greater than the listed substance's reportable quantity value, RQ, unless the release is federally permitted as defined in 42 U.S.C. 9601, or is specifically excluded under the definition of release as defined in 40 CFR 302.3(22). Reportable quantities are codified in 40 CFR Part 302. If the listed substance is not a hazardous substance under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and, thus, does not have an RQ, then report releases that exceed 2,270 kg. If such a substance however, is designated as a CERCLA hazardous substance, then report those releases that are equal to or greater than the RQ. The facility may have answered these questions or similar questions under the Agency's Accidental Release Information Program and may already have this information readily available. Assign a number to each release and use this number throughout this part to identify the release. Releases over more than a 24-hour period are not single releases, i.e., the release of a chemical substance equal to or greater than an RQ must be reported as a separate release for each 24-hour period the release exceeds the RQ.

For questions 10.25-10.35, answer the questions for each release identified in question 10.23. Photocopy these questions and complete them separately for each release.

PART A GENERAL INFORMATION

10.01 Where is your facility located? Circle all appropriate responses.

CBI

- ☐ Industrial area (1)
- ☒ Urban area (2)
- Residential area 3
- Agricultural area 4
- Rural area 5
- Adjacent to a park or a recreational area 6
- ☒ Within 1 mile of a navigable waterway (7)
- ☒ Within 1 mile of a school, university, hospital, or nursing home facility (8)
- Within 1 mile of a non-navigable waterway 9
- Other (specify) _____ 10

☐ Mark (X) this box if you attach a continuation sheet.

10.02 Specify the exact location of your facility (from central point where process unit is located) in terms of latitude and longitude or Universal Transverse Mercader (UTM) coordinates.

Latitude 42° 44' 51"

Longitude 71° 25' 30"

UTM coordinates Zone _____, Northing _____, Easting _____

10.03 If you monitor meteorological conditions in the vicinity of your facility, provide the following information.

Average annual precipitation UK inches/year

Predominant wind direction UK

10.04 Indicate the depth to groundwater below your facility.

Depth to groundwater UK meters

10.05 For each on-site activity listed, indicate (Y/N/NA) all routine releases of the listed substance to the environment. (Refer to the instructions for a definition of CBI Y, N, and NA.)

<input type="checkbox"/> On-Site Activity	Environmental Release		
	Air	Water	Land
Manufacturing	<u>NA</u>	<u>NA</u>	<u>NA</u>
Importing	<u>NA</u>	<u>NA</u>	<u>NA</u>
Processing	<u>Y</u>	<u>N</u>	<u>N</u>
Otherwise used	<u>NA</u>	<u>NA</u>	<u>NA</u>
Product or residual storage	<u>NA</u>	<u>NA</u>	<u>NA</u>
Disposal	<u>NA</u>	<u>NA</u>	<u>NA</u>
Transport	<u>NA</u>	<u>NA</u>	<u>NA</u>

☐ Mark (X) this box if you attach a continuation sheet.

10.06 Provide the following information for the listed substance and specify the level of precision for each item. (Refer to the instructions for further explanation and an example.)

CBI

☐

Quantity discharged to the air UK kg/yr ± - %

Quantity discharged in wastewaters Not Applicable kg/yr ± - %

Quantity managed as other waste in on-site treatment, storage, or disposal units NA kg/yr ± - %

Quantity managed as other waste in off-site treatment, storage, or disposal units UK kg/yr ± - %

☐ Mark (X) this box if you attach a continuation sheet.

10.08 Describe the control technologies used to minimize release of the listed substance for each process stream containing the listed substance as identified in your process block or residual treatment block flow diagram(s). Photocopy this question and complete it separately for each process type.

CBI

☐ Process type Conformal Coat Electrical Assemblies

<u>Stream ID Code</u>	<u>Control Technology</u>	<u>Percent Efficiency</u>
<u>7e</u>	<u>None</u>	<u>NA</u>
<u>7g</u>	<u>None</u>	<u>NA</u>
<u>7I</u>	<u>None</u>	<u>NA</u>
<u>7x</u>	<u>None</u>	<u>NA</u>
<u>7L</u>	<u>None</u>	<u>NA</u>
<u>7N</u>	<u>None</u>	<u>NA</u>
<u>7P</u>	<u>None</u>	<u>NA</u>
<u>7V</u>	<u>None</u>	<u>NA</u>

☐ Mark (X) this box if you attach a continuation sheet.

PART B RELEASE TO AIR

- 10.09 Point Source Emissions -- Identify each emission point source containing the listed substance in terms of a Stream ID Code as identified in your process block or residual treatment block flow diagram(s), and provide a description of each point source. Do not include raw material and product storage vents, or fugitive emission sources (e.g., equipment leaks). Photocopy this question and complete it separately for each process type.

Process type

Point Source
ID Code

Description of Emission Point Source

7E
7G
7I
7X
7L
7W
7P
7V

Mix Station Vent
Evacuation Vent
Conformal Coating Vent
Evacuation Vent
Test Station Vent
Curing Vent
Curing Oven Vent
Equipment Cleaning Vent

☐ Mark (X) this box if you attach a continuation sheet.

10.10 Emission Characteristics - - Characterize the emissions for each Point Source ID Code identified in question 10.09 by completing the following table.

CBI

☐

Point Source ID Code	Physical State ¹	Average Emissions (kg/day)	Frequency ² (days/yr)	Duration ³ (min/day)	Average Emission Factor ⁴	Maximum Emission Rate (kg/min)	Maximum Emission Rate Frequency (events/yr)	Maximum Emission Rate Duration (min/event)
7E	G	UK	UK	UK	UK	UK	UK	UK
7G	G	UK	UK	UK	UK	UK	UK	UK
7I	G	UK	UK	UK	UK	UK	UK	UK
7X	G	UK	UK	UK	UK	UK	UK	UK
7L	G	UK	UK	UK	UK	UK	UK	UK
7N	G	UK	UK	UK	UK	UK	UK	UK
7P	G	UK	UK	UK	UK	UK	UK	UK
7V	G	UK	UK	UK	UK	UK	UK	UK

¹Use the following codes to designate physical state at the point of release:
G = Gas; V = Vapor; P = Particulate; A = Aerosol; O = Other (specify) _____

²Frequency of emission at any level of emission

³Duration of emission at any level of emission

⁴Average Emission Factor — Provide estimated (\pm 25 percent) emission factor (kg of emission per kg of production of listed substance)

10.11 Stack Parameters -- Identify the stack parameters for each Point Source ID Code identified in question 10.09 by completing the following table.

CBI

☐

Point Source ID Code	Stack Height(m)	Stack Inner Diameter (at outlet) (m)	Exhaust Temperature (°C)	Emission Exit Velocity (m/sec)	Building Height(m) ¹	Building Width(m) ²	Vent, Type ³
7E	5.5m	0.2m	UK	UK	7.3m	133.8m	V
7G	Not App	Not App	Not App	Not App	Not App	Not App	Not App
7I	"	"	"	"	"	"	"
7X	"	"	"	"	"	"	"
7L	"	"	"	"	"	"	"
7N	"	"	"	"	"	"	"
7P	"	"	"	"	"	"	"
7V	"	"	"	"	"	"	"

¹Height of attached or adjacent building

²Width of attached or adjacent building

³Use the following codes to designate vent type:

H = Horizontal

V = Vertical

☐ Mark (X) this box if you attach a continuation sheet.

10.12 If the listed substance is emitted in particulate form, indicate the particle size distribution for each Point Source ID Code identified in question 10.09.
Photocopy this question and complete it separately for each emission point source.

CBI

☐

Not Applicable

Point source ID code

Size Range (microns)

Mass Fraction (% ± % precision)

< 1

≥ 1 to < 10

≥ 10 to < 30

≥ 30 to < 50

≥ 50 to < 100

≥ 100 to < 500

≥ 500

Total = 100%

☐ Mark (X) this box if you attach a continuation sheet.

PART C FUGITIVE EMISSIONS

10.13 Equipment Leaks -- Complete the following table by providing the number of equipment types listed which are exposed to the listed substance and which are in service according to the specified weight percent of the listed substance passing through the component. Do this for each process type identified in your process block or residual treatment block flow diagram(s). Do not include equipment types that are not exposed to the listed substance. If this is a batch or intermittently operated process, give an overall percentage of time per year that the process type is exposed to the listed substance. Photocopy this question and complete it separately for each process type.

CBI

☐ Process type Not Applicable - Manual Process

Percentage of time per year that the listed substance is exposed to this process type %

Equipment Type	Number of Components in Service by Weight Percent of Listed Substance in Process Stream					Greater than 99%
	Less than 5%	5-10%	11-25%	26-75%	76-99%	
Pump seals ¹						
Packed						
Mechanical						
Double mechanical ²						
Compressor seals ¹						
Flanges						
Valves						
Gas ³						
Liquid						
Pressure relief devices ⁴ (Gas or vapor only)						
Sample connections						
Gas						
Liquid						
Open-ended lines ⁵ (e.g., purge, vent)						
Gas						
Liquid						

¹List the number of pump and compressor seals, rather than the number of pumps or compressors

10.13 continued on next page

☐ Mark (X) this box if you attach a continuation sheet.

10.13 (continued)

²If double mechanical seals are operated with the barrier (B) fluid at a pressure greater than the pump stuffing box pressure and/or equipped with a sensor (S) that will detect failure of the seal system, the barrier fluid system, or both, indicate with a "B" and/or an "S", respectively

³Conditions existing in the valve during normal operation

⁴Report all pressure relief devices in service, including those equipped with control devices

⁵Lines closed during normal operation that would be used during maintenance operations

10.14 Pressure Relief Devices with Controls -- Complete the following table for those pressure relief devices identified in 10.13 to indicate which pressure relief devices in service are controlled. If a pressure relief device is not controlled, enter "None" under column c.

CBI

☐

Not Applicable

a. Number of Pressure Relief Devices	b. Percent Chemical in Vessel ¹	c. Control Device	d. Estimated Control Efficiency ²
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

¹Refer to the table in question 10.13 and record the percent range given under the heading entitled "Number of Components in Service by Weight Percent of Listed Substance" (e.g., <5%, 5-10%, 11-25%, etc.)

²The EPA assigns a control efficiency of 100 percent for equipment leaks controlled with rupture discs under normal operating conditions. The EPA assigns a control efficiency of 98 percent for emissions routed to a flare under normal operating conditions

☐ Mark (X) this box if you attach a continuation sheet.

10.15 Equipment Leak Detection -- If a formal leak detection and repair program is in place, complete the following table regarding those leak detection and repair procedures. Photocopy this question and complete it separately for each process type.

CBI

☐

Process type

Not Applicable

Equipment Type	Leak Detection Concentration (ppm or mg/m ³) Measured at	Detection Device ¹	Frequency of Leak Detection (per year)	Repairs Initiated (days after detection)	Repairs Completed (days after initiated)
	Inches from Source				
Pump seals					
Packed					
Mechanical					
Double mechanical					
Compressor seals					
Flanges					
Valves					
Gas					
Liquid					
Pressure relief devices (gas or vapor only)					
Sample connections					
Gas					
Liquid					
Open-ended lines					
Gas					
Liquid					

¹Use the following codes to designate detection device:

POVA = Portable organic vapor analyzer

FPM = Fixed point monitoring

O = Other (specify) _____

☐

Mark (X) this box if you attach a continuation sheet.

☐ Mark (X) this box if you attach a continuation sheet.

10.16 Raw Material, Intermediate and Product Storage Emissions - - Complete the following table by providing the information on each liquid raw material, intermediate, and product storage vessel containing the listed substance as identified in your process block or residual treatment block flow diagram(s).

CBI

☐ *Not Applicable*

Vessel Type ¹	Floating Roof Seals ²	Composition of Stored Materials ³	Throughput (liters per year)	Vessel Filling Rate (gpm)	Vessel Filling Duration (min)	Vessel Inner Diameter (m)	Vessel Height (m)	Operating Vessel Volume (l)	Vessel Emission Controls ⁴	Design Flow Rate ⁵	Vent Diameter (cm)	Control Efficiency (%)	Basis for Estimate ⁶

¹Use the following codes to designate vessel type:

F = Fixed roof
 CIF = Contact internal floating roof
 NCIF = Noncontact internal floating roof
 EFR = External floating roof
 P = Pressure vessel (indicate pressure rating)
 H = Horizontal
 U = Underground

²Use the following codes to designate floating roof seals:

MS1 = Mechanical shoe, primary
 MS2 = Shoe-mounted secondary
 MS2R = Rim-mounted, secondary
 LM1 = Liquid-mounted resilient filled seal, primary
 LM2 = Rim-mounted shield
 LMW = Weather shield
 VM1 = Vapor mounted resilient filled seal, primary
 VM2 = Rim-mounted secondary
 VMW = Weather shield

³Indicate weight percent of the listed substance. Include the total volatile organic content in parenthesis

⁴Other than floating roofs

⁵Gas/vapor flow rate the emission control device was designed to handle (specify flow rate units)

⁶Use the following codes to designate basis for estimate of control efficiency:

C = Calculations
 S = Sampling

PART E NON-ROUTINE RELEASES

Not Applicable

10.23 Indicate the date and time when the release occurred and when the release ceased or was stopped. If there were more than six releases, attach a continuation sheet and list all releases.

<u>Release</u>	<u>Date Started</u>	<u>Time (am/pm)</u>	<u>Date Stopped</u>	<u>Time (am/pm)</u>
<u>1</u>	_____	_____	_____	_____
<u>2</u>	_____	_____	_____	_____
<u>3</u>	_____	_____	_____	_____
<u>4</u>	_____	_____	_____	_____
<u>5</u>	_____	_____	_____	_____
<u>6</u>	_____	_____	_____	_____

10.24 Specify the weather conditions at the time of each release.

Response Not Required for TDI

<u>Release</u>	<u>Wind Speed (km/hr)</u>	<u>Wind Direction</u>	<u>Humidity (%)</u>	<u>Temperature (°C)</u>	<u>Precipitation (Y/N)</u>
<u>1</u>	_____	_____	_____	_____	_____
<u>2</u>	_____	_____	_____	_____	_____
<u>3</u>	_____	_____	_____	_____	_____
<u>4</u>	_____	_____	_____	_____	_____
<u>5</u>	_____	_____	_____	_____	_____
<u>6</u>	_____	_____	_____	_____	_____

☐ Mark (X) this box if you attach a continuation sheet.